



Food and Agriculture  
Organization of the  
United Nations



Indian Ocean Tuna Commission  
Commission des Thons de l'océan Indien

Report and documentation of the

## CONSULTATION AND VALIDATION WORKSHOP ON THE DEVELOPMENT OF AN IOTC ELECTRONIC MONITORING AND REPORTING INFORMATION SYSTEM

(e-MARIS)

**Cape Town, South Africa, 25-27 October, 2017**



The IOTC e-MARIS consultation workshop was financially supported by:



## PREPARATION OF THIS DOCUMENT

In 2013 the Indian Ocean Tuna Commission (IOTC) Performance Review made two major recommendations related to compliance with data collection and reporting, and following up on infringements.

### **Compliance with data collection and reporting requirements**

Para 102. The Commission, through its Compliance Committee, needs to strengthen its compliance monitoring in relation to the timeliness and accuracy of data submissions. To this end, the performance review recommended :

*“b) to facilitate thorough reviews of compliance, the Commission should invest in the development and implementation of an integrated electronic reporting program. This should include automatic integration of data from CPCs into the IOTC Secretariat’s databases and automatic cross-referencing obligations and reports for the various obligations, in particular related to the provision of scientific data.”*

### **Follow-up on infringements**

Para 153. The performance review recommended that:

*“b) The IOTC **further develop an online reporting tool to facilitate reporting by CPCs** and to support the IOTC Secretariat through the automation of identification of non-compliance.”*

These recommendations were the basis for the development of the Electronic Monitoring and Reporting Information System (e-MARIS) initiative. This document reports on an e-MARIS consolidation and validation workshop held in Cape Town South Africa in October 2017. It also includes recommendations from the experts attending the workshop, that will serve as basis for further work on the development and implementation of the system.

The conveners of the workshop were Mr Florian Giroux<sup>1</sup>, Mr Fabio Fiorellato<sup>2</sup> and Mr Olivier Roux<sup>3</sup>. Their report provides a record of workshop activities and the outcomes as agreed to by the participants.

### **Distribution:**

Participants in the workshop

IOTC CPCs

Chairperson IOTC

Chairperson IOTC Compliance Committee

Chairperson IOTC Scientific Committee

Chairperson IOTC Working Party on Data Collection and Statistics

Project Manager of the FAO GEF ABNJ Tuna Project

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<sup>2</sup> IOTC Secretariat – Data Coordinator

<sup>3</sup> IT Consultant

## ACRONYMS USED

ABNJ	Area Beyond National Jurisdiction
CMMs	Conservation and Management Measures
CPCs	Contracting Parties and Cooperating Non-Contracting Parties
e-MARIS	Electronic Monitoring and Reporting Information System
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environmental Fund
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOTC	Indian Ocean Tuna Commission
MCS	Monitoring, Control and Surveillance
NPFC	North Pacific Fisheries Commission
PRIOTC	Performance Review of the Indian Ocean Tuna Commission
RFMO	Regional Fisheries Management Organization
SC	Scientific Committee
SIOFA	Southern Indian Ocean Fisheries Agreement
t-RFMO	Tuna Regional Fisheries Management Organization
WPDCS	Working Party on Data Collection and Statistics

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## Opening of the Workshop and logistical arrangements

The meeting was held at the Protea Hotel Waterfront Breakwater Lodge, Cape Town, South Africa, from 25 to 27 October 2017, with the financial assistance for the participants, the resource persons and the venue being provided by the FAO Common Oceans/ABNJ Tuna Project.

Mr. Giroux Florian welcomed the workshop participants and provided general information on the workshop and logistical arrangements. Mr Aphiwe Nonkeneza, Senior Administrative Officer, Pelagic and High Seas Fisheries Management, Department of Agriculture, Forestry and Fisheries (South Africa), opened the workshop.

The work programme is presented in Appendix 1 and the List of Participants is provided in Appendix 2. The final technical specifications of the e-MARIS, including the outcomes of the workshop are presented in Appendix 3.

## Project presentation

Mr. Giroux provided an overview of the project, explaining the origin of the e-MARIS initiative being linked to the recommendations of the second IOTC Performance Review (PRIOTC02). He explained that the first IOTC performance review was undertaken in response to calls from the international community for a review of the performance of RFMOs. IOTC facilitated its first performance review in 2007; and a second review was held in 2013. The second review:

- a) evaluated the progress made on the recommendations arising from the first performance review;
- b) focused on the effectiveness of the Commission to fulfil its mandate, in accordance with set criteria;
- c) evaluated strengths, weaknesses, opportunities and risks to the Organisation.

Mr. Giroux recalled that the two main recommendations related to the e-MARIS initiative originated from paragraph 241 of the report of this (second) review (IOTC–2016–PRIOTC02–R):

### Compliance with data collection and reporting requirements

Para 102. The Commission, through its Compliance Committee, needs to strengthen its compliance monitoring in relation to the timeliness and accuracy of data submissions. To that end, the PRIOTC02 **RECOMMENDED** that:

*“b) to facilitate thorough reviews of compliance, the Commission should invest in the development and implementation of an integrated electronic reporting program. This should include automatic integration of data from CPCs into the IOTC Secretariat’s databases and automatic cross-referencing obligations and reports for the various obligations, in particular related to the provision of scientific data.”*

### Follow-up on infringements

Para 153. The PRIOTC02 **RECOMMENDED** that:

*“b) The IOTC **further develop an online reporting tool to facilitate reporting by CPCs** and to support the IOTC Secretariat through the automation of identification of non-compliance.”*

Mr. Giroux also provided an overview of the 3 phases of the e-MARIS project, namely:

### Phase 1 – ToR technical specifications

Development of a draft Terms of Reference to be used for the design & implementation of an integrated monitoring and reporting information system for IOTC CPCs, web based system accessible through the IOTC web site, to support the reporting of data & information required by the IOTC Resolutions and the Agreement. Noting the design of e-MARIS should follow a thorough assessment of the current state of the art in close consultations with CPCs.

## **Phase 2 – Development of the system**

The development of the system includes the development of user manuals, both for internal users (installation, administration, maintenance) and the training of the IOTC CPCs. This would include the organisation of regional training courses and national training courses.

## **Phase 3 – System performance assessment**

Technical assistance to the IT Section of the IOTC Secretariat, including training and assessment of the performance of the system and debugging.

## Context, objective and methodology of the workshop

Mr. Olivier Roux presented the context of the e-MARIS project, and where possible compared it to similar processes or initiatives in the other t-RFMOs.

A summary of the review of t-RFMOs requirements and reporting/compliance processes (developed for IOTC and later updated for ICCAT, both studies funded by the FAO Common Oceans ANBJ Tuna Project) was also presented, which outlined the large number of requirements and the overall complexity of processes, justifying the development of integrated online reporting systems, which most t-RFMOs are interested in, or are already developing.

The methodology of the workshop was also presented. This was to include short presentations of the various components of e-MARIS, followed by facilitated discussions by small groups of CPCs to gather their feedback.

Participants requested information on the development phase and its duration, including a time frame for developing the system, as well as information about the budget and methodology for the approval of the next phase of the e-MARIS.

Participants also mentioned that the current IOTC statistical data templates are not mandatory and difficult to use, therefore recommended that new templates and / or data formats be developed by the IOTC Secretariat as part of the development phase of e-MARIS.

## IOTC - understanding the IOTC Compliance Process

Mr. Giroux provided an overview of the IOTC compliance process that ranged from the submission of information by the CPCs to the work of the Compliance Committee. He provided information on the functions and responsibilities of the Compliance Committee and gave an overview of the levels of compliance of IOTC members with the Commission's management measures.

## IOTC - understanding the information and data reporting requirements

Mr. Giroux provided an overview of the IOTC information and data reporting requirements and reminded the participants of the obligations of CPCs under the basic texts of the IOTC, which can be categorized into four types of reporting requirements:

1. Reporting linked to meeting deadlines:
  - Article X of the Agreement – Report of implementation
  - Rules of Procedure, Appendix V – Compliance Questionnaire
  - Scientific Committee 04 – National scientific report
  - Seventeenth Session of the Commission – Feedback letter.
2. Reporting linked to Resolution's deadlines:
  - Resolution 10/08 - List of active vessels / 15 February every year

3. Reporting linked to legal aspects - transposition of technical measures into domestic legislation under the Agreement's Article X:
  - Resolution 12/09 - Ban on thresher sharks.
4. *Ad hoc* reporting:
  - Resolution 15/04 - record of authorised vessels
  - Resolution 01/06 - personnel authorised to validate Bigeye Tuna Statistical Documents.

Mr. Fabio Fiorellato made a presentation which focussed on the management of the mandatory statistical data at the IOTC Secretariat, covering the following topics:

- IOTC statistical data - purposes and requirements.
- Main IOTC Resolutions related to data collection and submission (Res 15/01, 15/02 and 12/02).
- Minimum set of required information by data set, species and gear.
- IOTC recommended data reporting templates and known issues.
- Current state of the art, including remarks on the difficulties in dealing with a wide range of possible data reporting templates.
- e-MARIS as an integrated tool to submit statistical data and the impact of its adoption on CPCs.
- Interactions between e-MARIS and the IOTC Statistical Working Systems.

Mr. Fiorellato reiterated the importance of timely and accurate submissions of all required statistical data, acknowledging the known issues – at CPC level – that are currently preventing the process from being successfully implemented on a global scale.

During the presentation, CPCs were called upon to self-assess their current capacity in terms of:

- 1) Collecting all the information required by standing IOTC Resolutions, down to the expected level of detail.
- 2) Timely report of statistical data to the IOTC Secretariat using the recommended IOTC forms.

These two requirements are the basis for a successful adoption of e-MARIS as a supporting tool to increase the CPCs' compliance level in terms of mandatory statistical data submissions.

The known issues and concerns associated with the recommended IOTC data submission forms were also discussed, and feedback on their usage from participants was collected.

It was once again agreed and recommended that – as part of the e-MARIS development phase – new data submission templates (potentially in CSV format) would be designed in consultation with CPCs to improve the effectiveness of the data reporting process through e-MARIS.

## ICCAT - Information & data reporting system, current status and way forward

Ms. Jenny Cheadle, from the International Commission for the Conservation of Atlantic Tunas (ICCAT) Secretariat, presented the online reporting system on ICCAT's conservation and management measures. She provided an overview of ICCAT: the Convention area, the CMMs, the 30 species of tuna and tuna-like fishes, the vessels (28,000) and the 150 management and scientific reporting requirements. A summary of the management and the 39 ICCAT databases was provided, with 14 directly related to compliance/management information.

The background of the ICCAT online reporting system was presented. The idea of on-line reporting was mooted some years back, but no official proposal was made at that time. The initiative was set within the Recommendation by ICCAT for the Development of an Online Reporting System adopted in 2016 (Recommendation 16-19), which established a Working Group and process. She explained that the ICCAT Secretariat is exploring possibilities of on-line statistical data reporting.

A summary of the actions taken so far by ICCAT was described:

- Recommendation for an Online Reporting System adopted at the 2016 annual meeting.
- 2016 FAO Common Oceans/ABNJ Tuna Project proposed funding for a project to develop a fisheries online reporting information system.
- January 2017: The ICCAT Online Reporting Working Group was convened.
- February: 2017 the group began developing a draft discussion paper as well as a model schematic, which attempted to lay out discussion topics specific to an online reporting system for the group to discuss and visualize what a system could look like.
- March 2017: the ICCAT Secretariat put out a request for a contract, stemming from funding from the ABNJ Tuna Project /GEF Common Ocean Program, which calls for the development of a “Feasibility Study for an ICCAT Online Reporting system”, including the design and development of a working prototype (case study) based on catch and effort reporting. The contract requested a cost benefit analysis of the system. The project aims to be finalized by the end of September 2018.

Ms Cheatle indicated that ICCAT was interested in following the initiatives of other t-RFMOs to learn from their experiences with the aim to develop similar systems for elements which are common to two or more t-RFMOs.

Participants inquired as to whether the ICCAT and IOTC systems would be similar and/or share ideas and/or resources. Mr Roux informed the workshop that one of the reasons behind the ABNJ Project funding both studies and hiring the same consultant to conduct them was effectively to maximise the opportunities for sharing design and implementation details between the two systems.

## NPFC - Information & data reporting system, current status and way forward

Mr. Peter Flewwelling, Compliance Manager of the North Pacific Fisheries Commission (NPFC) Secretariat, presented the ‘Direct Entry Vessel Registry’ which has been developed as a web-based direct online vessel registry system for NPFC Members who authorize approximately 1,000 fishing vessels to fish each year in NPFC Convention Area.

Mr. Flewwelling provided an overview of NPFC, including its history (NPFC Convention came into force on 19 July 2015). The current Members are Canada, China, Japan, the Republic of Korea, the Russian Federation, Taiwan Province of China, the United States of America and Vanuatu. The objectives of the Commission are ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area while protecting the marine ecosystems of the North Pacific Ocean in which these resources occur.

He also presented an overview of the direct entry vessel registry followed by a live demonstration of the entry of a vessel in the system.

From a fisheries management and MCS perspective, it was highlighted that a similar vessels registry would be the primary MCS tool to set up at national or RFMO level, and as such it should be considered as a priority module during the development of e-MARIS (considering also the possibility that it would directly connect to existing vessel registries at national level).



## e-MARIS - Scope and global organisation

Mr Roux detailed the scope of the future e-MARIS, and introduced the general framework of the system, including its main modules to be jointly further discussed during the following sessions and separately by participating CPCs divided in small work groups.

The participants discussed a range of issues and made recommendations that are compiled in the *Workshop recommendations* section below.

In response to questions from the participants, NPFC and ICCAT confirmed that, for some of their own systems, a cloud hosting option was chosen because it would cost less, and have good security and reliability.

## e-MARIS - Modules Definition and Benefits for Members

Mr Roux presented the various e-MARIS modules and detailed the benefits that Members could expect from its adoption. e-MARIS would also be beneficial for the IOTC Secretariat, freeing its staff from time-consuming and repetitive tasks, and allow them to focus resources on helping the CPCs to improve the quality of their information reporting and eventually their overall compliance level.

## Detailed presentation of the CPC-facing features

CPC-facing features were described in several 20-30 minute presentations, each followed by a 45 minutes discussion amongst CPCs (in 3 small groups). Mr. Roux presented details on the various features that e-MARIS would offer for the CPCs, along with screen ‘mock-ups’ to illustrate the workflows and how the various screens might look like and be organised.

At the end of each discussion session, the comments, suggestions and questions of the small groups were collected, compiled, analysed and responded to by Mr. Roux and the IOTC Secretariat staff.

These suggestions and recommendations are compiled in the *Workshop recommendations* section below.

## Presentation of the IOTC-facing features

During several 20-30 minute presentations, each followed by discussions across the floor, Mr. Roux presented the various features that e-MARIS would offer for the IOTC Secretariat, along with screen ‘mock-ups’ to illustrate the workflows and how the various screens might look like and be organised.

During each discussion session, the comments, suggestions and questions were collected, compiled, analysed and responded to by M. Roux and the IOTC Secretariat staff.

These suggestions and recommendations are compiled in the *Workshop recommendations* section below.

## Workshop recommendations

The workshop participants agreed to the following recommendations:

1. In accordance with the recommendations of the PRIOTC02, the IOTC Secretariat should pursue *as soon as possible* the work related to the development of the e-MARIS and secure appropriate funding (IOTC budget or contact international organizations, donor agencies and non-governmental organizations to seek financial contribution).

2. The Secretariat should present the outcomes of the e-MARIS workshop at the next session of the Compliance Committee for its consideration, and the IOTC Scientific Committee should be made aware of those results through the report of the WPDCS.
3. The Secretariat should pursue the development work in a progressive and modular approach, taking into consideration those general recommendations:
  - a) Define priorities in terms of development of the modules and give due consideration to developing an online Record of Authorized Vessels to allow CPCs to manage their own list of Authorised Vessels.
  - b) CPCs should be involved in the development phase through an iterative trial/test/feedback process before each module/system enters the production phase.
  - c) New data and information submission templates/formats should be designed in consultation with CPCs, to facilitate and improve the effectiveness of the data and information reporting process through e-MARIS, for both CPCs and the Secretariat (in particular by reducing the need for manual data entry).
  - d) Due consideration should be given to the security, reliability and efficiency aspects of the system, in relation to data confidentiality. A decision should be taken on the way the system would be hosted (locally at the Secretariat or on a Cloud platform), on a cost-effectiveness basis, taking into account the security, reliability and efficiency aspects mentioned above.
  - e) Appropriate documentation should be developed (e-MARIS user's manuals) and regional/national training should be designed and conducted by the Secretariat to assist the users of e-MARIS.
4. The Secretariat should pursue the development of the system as soon as possible, taking into consideration the below features and functionalities suggested by the participants, that will be incorporated into the detailed requirements, functional and technical specifications of e-MARIS (workshop document reference EMARIS09a):
  - a) The system should automatically save a user's work to prevent data loss in case of disconnection etc.
  - b) The system should automatically sign out users after a certain period of inactivity.
  - c) Each CPC should have dedicated administrator account(s) created by the Secretariat, through which they would be able to create/manage CPC user accounts.
  - d) CPC user accounts should be assigned roles (e.g.: *compliance, science, validation*).
  - e) Replying to notifications/feedback should be possible right from the user's e-mail client.
  - f) Notification "*read*" status should be per user account, even if a notification is sent to all users of a CPC.
  - g) Requirements should allow for keywords to be assigned for filtering/searching.
  - h) Requirements should be assigned a compliance/science category, to match the CPC user roles.
  - i) CPCs should have access to the reporting and compliance history of all CPCs, upon their publication (following the current process in place at IOTC).
  - j) CPCs should have access to a live dashboard of all CPC reporting status/level (it would also show the number of requirements applying vs not applying to a given CPC).
  - k) Requirement deadlines should also show the number of days remaining to report.
  - l) Any information submission should allow to be exported as PDF/Word before/after being submitted, to share it with colleagues or managers.

- m) On submission of a report, there should be an option to add a list of email addresses to which the PDF of the report would be sent.
  - n) The system should provide for a “validator” role that would have to approve any submission before it is actually published in the system (optional, depending on each CPC internal processes).
  - o) Annual reports should not be submitted automatically when the deadline is reached.
5. The Secretariat should update and finalize the Terms of Reference, detailed requirements, functional and technical specifications of the e-MARIS incorporating the recommendations of the workshop,
  6. The workshop participants suggested that the outcomes of this workshop be presented to the WP on Compliance, at its first meeting. The participants expressed their expectation that such a meeting would take place as soon as possible,

## Conclusions

There was an excellent level of participation to the discussions by all CPCs present at the workshop, which resulted in a range of constructive comments, questions and suggestions that will be taken into account to update the e-MARIS specifications to their final version.

The participants also expressed their strong interest in the proposed system, especially because, considering the large and ever growing number of information that have to be reported to IOTC, it would make reporting of information easier and more streamlined.,

Participants from other RFMO Secretariats (ICCAT, NPFC and SIOFA) expressed their interest in the approach adopted by IOTC to design and develop an online information reporting system for compliance and science information, and indicated that they would be interested in following the development, and possibly adopting some of the specifications and components for their own future needs.

Finally, the participants fully endorsed the presented e-MARIS specifications, with the inclusion of the additional features suggested during the workshop, and strongly encouraged the IOTC Secretariat to move forward on the next phase of the development of e-MARIS as soon as possible. The final technical specifications of the e-MARIS, including the outcomes of the workshop are presented in Appendix 3.

## Appendix 1 - Tentative programme of the workshop

<b>S.1.1</b>	<b>Day 1 – 25<sup>th</sup> October, 2017</b>	
	0830 - 0900	Registration
	0900 - 0920	Welcome of participants
		Opening: To be confirmed (DAFF Host country)
		Introduction of participants and resource persons
	0920 -0940	Project presentation: (IOTC)
	0940 -1000	Context, objective and methodology of the workshop (e-MARIS Team)
<b>S.1.2</b>	<b>1000 - 1030</b>	<b>Morning Break</b>
	1030 - 1050	IOTC - Understanding the IOTC Compliance Process (IOTC)
	1050 - 1100	Open discussions
	1100 - 1120	IOTC - Understanding the information & data reporting requirements (IOTC)
	1120 - 1130	Open discussions
	1130 - 1150	ICCAT - Information & data reporting system, current status and way forward (ICCAT)
	1150 - 1200	Open discussions
	1200 - 1220	NPFC - Information & data reporting system, current status and way forward (NPFC)
	1220 - 1230	Open discussions
<b>S.1.3</b>	<b>1230 - 1400</b>	<b>Lunch Break</b>
	1400 - 1430	e-MARIS Application - Scope and global organisation
	1430 - 1500	Open discussions
<b>S.1.4</b>	<b>1500 - 1530</b>	<b>Afternoon Break</b>
	1530 - 1615	e-MARIS Application - Modules Definition and Benefits for Members (e-MARIS Team)
	1615 - 1630	Open discussions
<b>S.2.1</b>	<b>Day 2 – 26<sup>th</sup> October, 2017</b>	
	0900 - 0930	Module 1 - Implementation Dashboard (e-MARIS Team)
		Module 1 - Administrative features
	0930 - 1030	Workgroups and discussions - Participants
<b>S.2.2</b>	<b>1030 - 1100</b>	<b>Morning Break</b>
	1100 - 1130	Module 1 - Implementation Dashboard (e-MARIS Team)
		Module 1 - Information submission features
	1130 - 1230	Workgroups and discussions - Participants
<b>S.2.3</b>	<b>1230 - 1345</b>	<b>Lunch Break</b>
	1345 - 1415	Module 1 - Implementation Dashboard (e-MARIS Team)
		Module 1 - Reporting and Compliance status features
	1415 - 1500	Workgroups and discussions - Participants
<b>S.2.4</b>	<b>1500 - 1530</b>	<b>Afternoon Break</b>

	1530 - 1600	Module 2 - Compliance Dashboard Module 2 - Administrative features	(e-MARIS Team)
	1600 - 1700	Workgroups and discussions - Participants	
<b>S.3.1</b>	<b>Day 3 – 27<sup>th</sup> October, 2017</b>		
	0900 - 0930	Module 2 - Compliance Dashboard Module 2 - Managing requirements	(e-MARIS Team)
	0930 - 1030	Workgroups and discussions - Participants	
<b>S.3.2</b>	<b>1030 - 1100</b>	<b>Morning Break</b>	
	1100 – 1130	Module 2 - Compliance Dashboard Module 2 - Reporting and Compliance status	(e-MARIS Team)
	1130 - 1230	Workgroups and discussions - Participants	
<b>S.3.3</b>	<b>1230 - 1345</b>	<b>Lunch Break</b>	
	1345 - 1415	Module 2 - Compliance Dashboard Module 2 - Compliance products	(e-MARIS Team)
	1415 - 1500	Workgroups and discussions - Participants	
<b>S.3.4</b>	<b>1500 - 1530</b>	<b>Afternoon Break</b>	
	1530 - 1600	Wrap-up and review of workshop recommendations	

## Appendix 2 - List of Participants

Name	Function	Contact/email
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Appendix 3 – Technical specifications of the proposed e-MARIS system





# e-MARIS project Phase 1: Drafting of the Terms of Reference (Cahier des charges) Component 2 – Drafting of the detailed requirements and elaboration of the functional and technical specifications

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01/09/2016	Olivier Roux	First version
01/10/2016	Olivier Roux	Second version including IOTC-facing features
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26/01/2017	FF, GD, FG	Complete version with IOTC Comments
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<b>List of Abbreviations and Acronyms</b>	
<b>CD</b>	Compliance Dashboard
<b>CMM</b>	Conservation and Management Measure (i.e. Resolutions and Recommendations)
<b>CPC</b>	Contracting or cooperating non-contracting party
<b>CQ</b>	Compliance Questionnaire
<b>CR</b>	Compliance Report
<b>ID</b>	Implementation Dashboard
<b>IR</b>	Implementation Report
<b>RFMO</b>	Regional Fisheries Management Organisation
<b>tRFMO</b>	Tuna Regional Fisheries Management Organisation



## 1 Background information

The Indian Ocean Tuna Commission is an intergovernmental organisation established under article XIV of the FAO constitution. The IOTC agreement was concluded in 1993 and entered in force in 1996. The IOTC is mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas, with the primary objective the conservation and optimum utilisation of the stocks for long term sustainability.

Since 1998, the members of the IOTC have dedicated most of their effort to the scientific component of fisheries management to manage the tuna and tuna-like resources. Since 2008, more emphasis has been dedicated to the compliance component of this tuna RFMO. A Compliance Committee was set up to assess and review all compliance aspects related to the implementation of the IOTC Conservation and Management Measures and provide support to Contracting and Cooperating Parties (CPCs) in the implementation of Monitoring, Control and Surveillance (MCS) tools adopted by the IOTC Members (IUU vessel lists, authorised & active vessels list, documents on board, marking of fishing vessels and gears, Vessel Monitoring System, fishing logbooks, regional observers scheme, transshipments programme, catch certification/trade documentation schemes).

Since 2010, the compliance assessment process has changed and is now based on a country approach, where compliance is assessed by country. For the implementing year 2014, there were 71 reporting requirements derived from the IOTC Resolutions (25 Resolutions and the Agreement) on which the CPCs have to provide information, data and reports. At present, the reporting of data and information is primarily made by CPCs via email, by the submission of reports, forms or template reports developed by the Secretariat.

Global project organisation:

- Phase 1 - Draft the Terms of Reference (Cahier des charges) to be used for the design and implementation of an integrated monitoring and reporting information system for IOTC CPCs (over a period of 2 months) after a thorough assessment of the current state of the art and in close consultation with the relevant CPCs as identified by the Secretariat.
- Phase 2 – Development of the application according to the Terms of Reference (Cahier des charges) to be used for the development of an integrated monitoring and reporting information system for IOTC CPCs (implemented by phase over a period of 2 to 6 years).
- Phase 3 – Technical assistance to IOTC secretariat (implemented over a period of 1 to 2 years).

The purpose of this consultancy is to draft the detailed requirements (usage scenario and use-cases) and elaborate functional and technical specifications for the system and processes, to be used for the development of an integrated monitoring and reporting information system for IOTC CPCs to support and facilitate the reporting of data and information required by the IOTC Resolutions. It corresponds to Phase 1 of the project only.

## 2 Conclusions from Component 1 – Briefing

Following the various discussions held during the Component 1 briefing, a short presentation was made by the consultant regarding a proposed global organisation of the future e-MARIS system and its relation to the IOTC databases.

Generally speaking, the system would try to be as close as possible to the current process in place, especially for the CPC-exposed parts, so as stay with what CPCs are used to.

Without getting into details, the system would have the following main components:

- Implementation Dashboard for CPCs (see the submission requirements, answer questions, submit requested documents and data, get feedback from IOTC Secretariat, etc.)
- Compliance Dashboard for IOTC (see submission status for each CPC, interact with CPCs, build Compliance reports, etc.)
- Administration tools for IOTC (manage users, build Implementation Report templates, manage notification schedule, perform administrative tasks, etc.)
- Links to the IOTC Statistical Working System (sending CPC data submissions to it and retrieving validation and QA information from it)

The following two Figures illustrate roughly how the system would be organised.

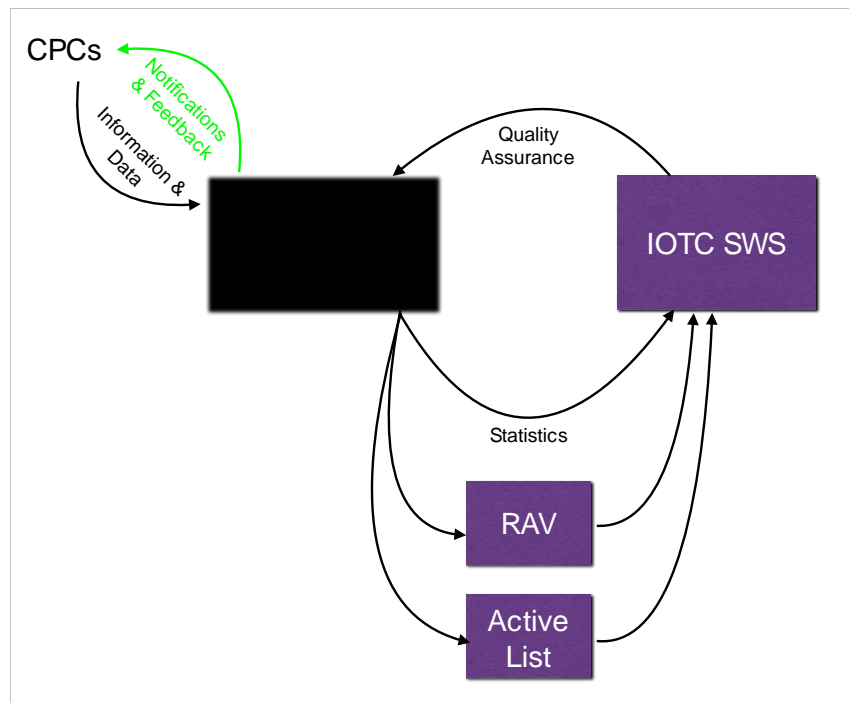


Figure 1. Global organisation of e-MARIS in relation with other systems

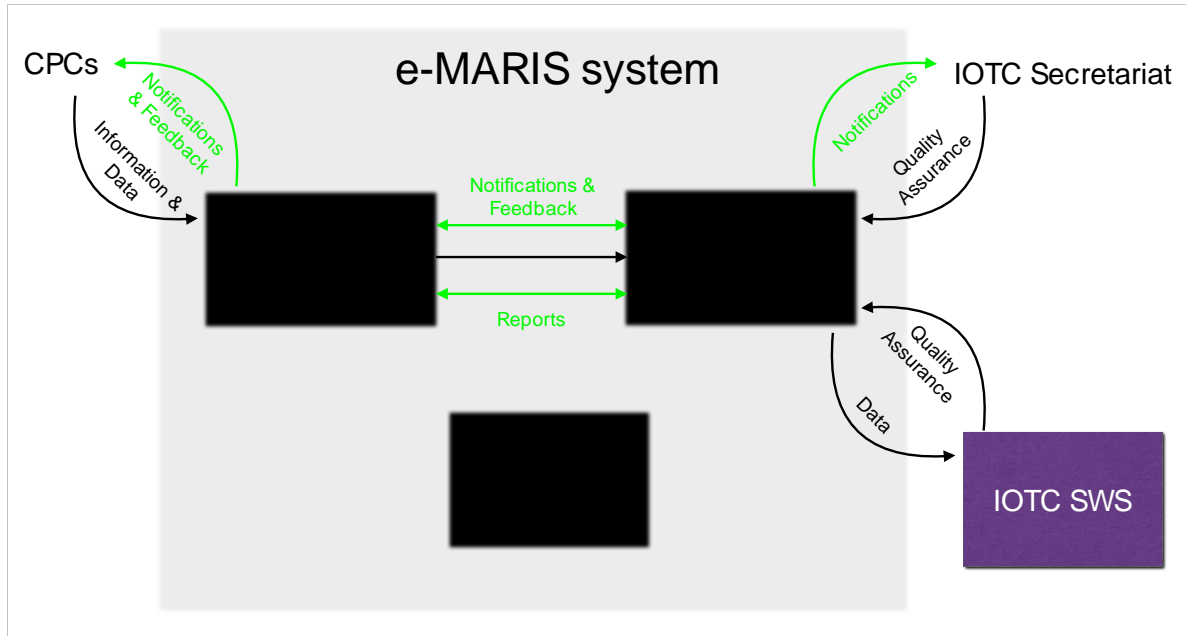


Figure 2. Proposed high-level components and information flows for the e-MARIS System

### 3 Systems and tools in place in other RFMOs

The following tuna RFMOs were approached to assess their implementation of information and data management systems similar in scope and purposes to the proposed e-MARIS system.

1. IATTC: The IATTC does not presently have a formal system for monitoring the collection and validation of mandatory compliance data. These duties are simply carried out by IATTC staff, based on a compliance questionnaire sent to reporting countries. IATTC will be interested in following IOTC's efforts to implement the e-MARIS system.
2. ICCAT: Right now ICCAT, doesn't have any "funded" project similar to e-MARIS. Instead, what ICCAT has right now, is an ICCAT Commission request (from last annual ICCAT meeting) to study and evaluate the possibilities of a WEB reporting/validation framework for all ICCAT data regulatory issues. Putting it in perspective:
  - a. Data requirements: ~60 forms for collecting data for the SCRS (<http://www.iccat.int/en/submitSTATreq.htm>) and for the Commission (<http://www.iccat.int/en/submitCOMPreq.htm>)
  - b. ICCAT is considering an integrated web information system (tri lingual): data consumer (manual/trough XML schema charge), validation, consolidation (ICCAT-DB), reporting, helpers, etc.
  - c. It is a long term project aiming to approach data availability in real time.
  - d. Right now ICCAT (IT and COMP departments) are studying different possibilities (mostly open-source)
  - e. The idea is to have a clear understanding of the technology available, the cost, and the development time (depending on the development model used - Secretariat or outsourcing).
3. CCSBT: No reply, but most probably no tool in place. The process relevant to data/information requirements for CCSBT members is described on this page: <https://www.ccsbt.org/en/content/data-submission-requirements>.

4. WCPFC: No reply, but most probably no tool in place. The process relevant to data/information requirements for WCPFC members is described on this page: <http://www.wcpfc.int/status-data-provision>.

These contacts show that none of the other 4 tuna RFMOs have in place a system similar to that envisioned through e-MARIS. Discussions show nonetheless that most of them are at least considering the opportunity of developing such a system, or are even in the early phases of reflexion for such a development.

IOTC, with its e-MARIS project, has consequently the opportunity to be the first tuna RFMO to develop an integrated information and data reporting system, both for Compliance and for Statistical purposes.

It would be interesting to develop e-MARIS as a system generic enough that it could be adapted not only to the evolving needs of IOTC, but also to the needs of the other tuna RFMOs. Indeed, if e-MARIS can be adopted by other tRFMOs, then it would greatly facilitate information exchange and integration amongst all tRFMOs, which is very important in the fight against IUU fishing and also for the sound management of tuna resources at the global level. This is of course not something that is easy to implement, as each tRFMO has its own processes and needs, but a recent study conducted for ICCAT by the author shows that said processes and needs are quite similar across all tRFMOs. One way of achieving this goal would be to ensure that the data definition, description and storage system can be adapted by each tRFMO to their own needs, and standard data formats exist and are in use, notably by FAO. This is a topic that could be further explored when working on the data structure/model for the application.

## 4 Technical requirements

The following points have to be taken into consideration for the development of e-MARIS, but since they are extremely dependent on the implementation choices, they won't be detailed in this document. In particular, if the development is handled in-house by IOTC, then this will be detailed directly with the developer(s). Some general comments are nonetheless given here.

### 4.1 System requirements

- **Hardware:** the application must be able to run on a standard server platform, and IOTC should be able to deploy it at the least costs. It is thus recommended to settle on running it on a Linux platform, at least for the application layer (the database layer can run on whatever platform is preferred by the IOTC, see below). It is recommended to deploy the application in a “Virtual Machine” (VM), as this allows for easier deployment (including running multiple instances of the application, such as one for production, one for testing and one for deployment of new code), as well as backing up the application and its environment (there are dedicated tools that can take full snapshots of a VM, allowing very fast server restore in case of a catastrophic failure).
- **Technologies:** to ensure that the application can be deployed on various IT infrastructures, it is recommended to adopt open source, free technologies such as Linux, Java, MySQL/PostgreSQL, etc. The use of development frameworks should be encouraged, but developers should avoid using cutting-edge, newly released frameworks, and focus on using widely available and widely used products, to avoid issues related to in-development code which usually involve bugs, lack of documentation, changing APIs, as well as poorly implemented or missing features.
- **Information storage:**
  - **Storage of statistical data:** IOTC already has a SWS in place, so the storage of statistical data coming from e-MARIS will continue to be handled by the SWS's storage solution (SQLServer).
  - **Storage of e-MARIS information, data and files:** all information and files submitted by CPC users (requirements, documents & data files, reports etc.) or produced by IOTC



users and e-MARIS (compliance validation, reporting status, compliance reports, configuration, etc.) will be stored in the e-MARIS database/data store.

The two information storage solutions could be different, depending on what the developers and/or IOTC decide, but it is important to make sure that e-MARIS is as much as possible database-agnostic, meaning that the database engine could be swapped out for another without too much efforts (i.e. vendor-specific features should be avoided as much as possible). This would ensure that e-MARIS can be adopted by other tRFMOs, without forcing them to change their IT framework.

- **Reliability:** this application must be running 24/7/365, ensuring the highest uptime, as users would be located all around the globe and thus there is no way to define “business hours” and “off hours”. This also means that the Internet connection that the application will be using must be stable and offer enough bandwidth. Guaranteeing uptime implies that not only has the application to be reliable, but also that some sort of live monitoring has to be put in place, so that technical staff are warned in case the system goes down.
- **Security:** information submitted by the CPCs to e-MARIS is covered by the IOTC Data Access rules & policies, so access to e-MARIS must comply with these policies. This means having a robust user access policy within the app itself (user accounts, privileges, etc.). This also means that the application must be protected against hacking through the implementation of best practices such as ensuring that all software components are fully patched and up-to-date, that the code prevents exploits such as SQL injections or cross-site scripting etc. It would also be highly recommended to have the whole application accessed over the Internet through Secure Socket Layer (SSL).
- **Hosting:** there are two choices regarding the hosting of the application (and its database), that is where the code will actually be deployed and running:
  - **Local:** e-MARIS is deployed on a physical server running on the Secretariat’s premises (preferably in a server room). This is often a solution preferred by IOTC (or imposed by the Members), as it seems to offer better protection and control on the data. This implies having and maintaining a physical server, a backup solution, as well as guaranteed power and Internet connections. The onus of uptime and security is then purely on IOTC. As the application then uses the IOTC Internet connection, ensuring a fast and seamless access to external users can be an issue.
  - **Cloud:** e-MARIS is deployed on a remote (virtual) server, maintained by a third-party provider. This means that all uptime and security aspects are handled by the provider, which has way more resources dedicated to this activities than IOTC can have (24/7/365 IT staff, constantly monitored security, fully patched servers, etc.). It also usually guarantees a very fast Internet connection (both up and down from the application), which makes using the application easier. This solution has the downside of externalising the storage of data, which is often something IOTC Members are not willing to allow.

## 4.2 Test environment

A full featured test environment should be provided as soon as possible, where all alpha and beta releases of the software would be available at all time, for IOTC staff (and possibly selected CPC users) to test.

A test dataset including a subset of requirements should be made be available for testing.

The test environment should be as close as possible to the final environment to validate hosting configuration, especially regarding network quality (bandwidth, and round-trip time).

### 4.3 Feedback collection and bug tracking

A dedicated online tool should be made available once the development has started, in order to collect feedback from users, and also allow for bug reporting and tracking.

An issue tracking tool such as JIRA should be deployed, which would let users report, track, prioritize, assign and audit ‘issues’, project tasks and feature requests. It improves productivity by cutting down on time wasted on tracking issues and coordination. Issue tracking software improves quality by ensuring all tasks are recorded down with all the details and followed up till completion.

## 5 How to progress on the development of e-MARIS

The scope of e-MARIS is rather massive, as evidenced by the number of features proposed above and the importance it would have within the IOTC processes.

To avoid overly long development time and the numerous issues that plague software projects that try to do too much at once, it is recommended to adopt a progressive, modular approach.

A first phase could be to work with the selected software developers to identify the main features for e-MARIS, and evaluate the time and resources for their implementation, which would help prioritize development.

It would be recommended to implement the priority e-MARIS features in the following order:

1. CPC-facing features:
  - a. Signing in and out, user access privileges etc.
  - b. displaying the list of requirements
  - c. submitting the required data and storing it
  - d. updating and displaying the reporting status.
2. IOTC-facing features:
  - a. Signing in and out, user access privileges, managing user accounts etc.
  - b. Managing requirements sets and requirements.
  - c. Validating CPC submission.

That would constitute the core of e-MARIS, which would be developed and tested before moving on to the more advanced features such as reporting and integration with external systems.

For the roll-out of e-MARIS, it is recommended to also use a progressive approach:

1. Start with a few selected CPCs and a limited set of requirements, and guide them through using e-MARIS to submit the required information.
2. Get their feedback, both in terms of what works and what doesn't.
3. Fix issues, improve features, add missing features.
4. Iterate by adding more CPCs/requirements. Do this for each new feature.

It is important to have CPCs involved at each step of the e-MARIS development process to ensure the best adoption possible of the system, and to remember that this system is meant to facilitate reporting by CPCs. If it makes reporting more difficult, then adoption will be an issue.

The same applies to IOTC staff, as e-MARIS is also meant to facilitate information requests, reception and processing, as well as reporting and compliance evaluation.

### 5.1 Development methodology

The e-MARIS application is an ambitious project, and its specifications are not set in stone nor defined down to the last bit. It would therefore definitely be recommended to use an agile approach to the

development of e-MARIS, in order to continuously ensure that the software implementation is progressing at a reasonable pace, and that its features really satisfy the needs of both the CPCs and IOTC.

Agility in software *provides* a high degree of collaboration between stakeholders, especially IOTC staff and the project development team. Agility also focuses on transparency about the implantation in terms of features, and planning. On the other hand, agile development *requires* a high level of collaboration between all the actors, meaning that IOTC staff will have to dedicate time for the development team, to ensure they have enough feedback and direction.

The software should be released by consistent chunk of testable features sets, on a schedule of a few weeks (to be defined). New features will be delivered quickly and frequently, with a high level of predictability.

This schedule of deliveries allow time for adjustments, should the resulting features not be as expected. While the team needs to stay focused on delivering an agreed-to subset of the product's features during each iteration, there is an opportunity to constantly refine and reprioritize the overall product feature-list. New or changed items can be planned for the next iteration, providing the opportunity to introduce changes within a few weeks.

## 6 Global organisation of e-MARIS

As illustrated by Figure 3, the e-MARIS Fisheries online reporting system would be organised in three main modules:

1. The Implementation Dashboard, which would be the section accessed by the CPC users, where they would see the list of all reporting requirements, submit the required information, interact with IOTC staff, consult their reporting and compliance status, etc.
2. The Compliance Dashboard, which would be the section accessed by IOTC staff, where they would create and manage reporting requirements, consult, evaluate and validate CPC submissions, generate synthetic reports, etc.
3. The administrative tools, where IOTC administrators would perform tasks such as managing CPC and IOTC user accounts, backing-up the system, etc.

e-MARIS could be linked to external, existing systems, such as the IOTC statistical working system, so that statistical data submitted as part of a reporting requirement would be passed on to the SWS, while the SWS would return validation/compliance information back to e-MARIS.

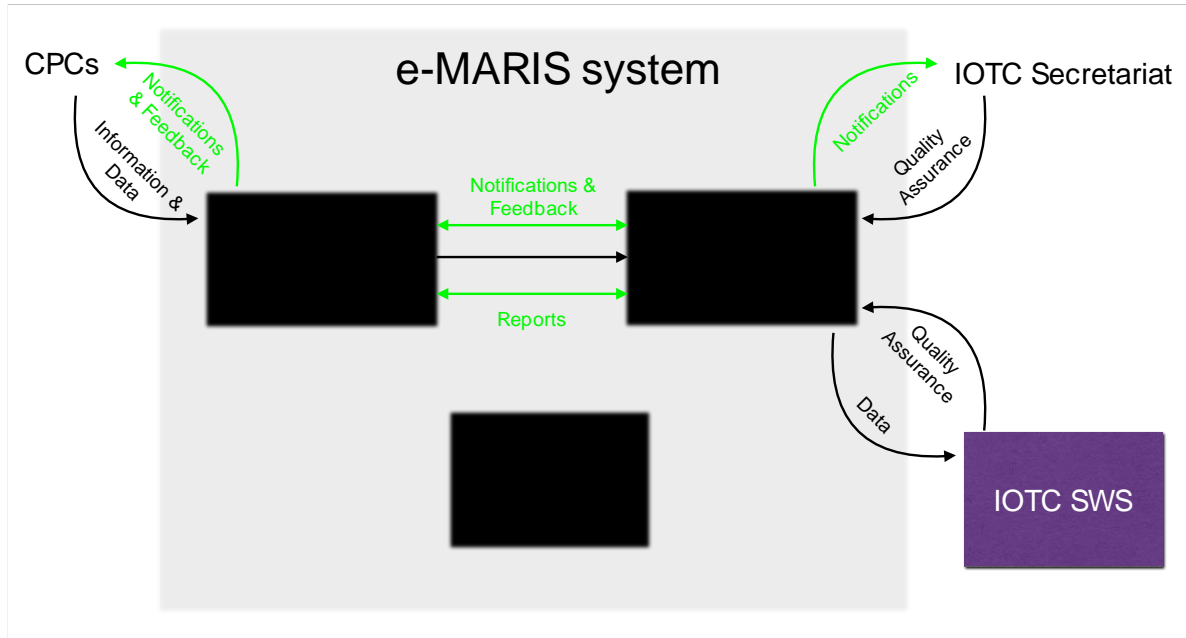


Figure 3. Global organisation of the e-MARIS Fisheries Online Reporting System

## 7 Implementation Dashboard for CPCs

### 7.1 Global organisation

The Implementation Dashboard (ID) is the central hub for CPC users to see what information they have to submit to IOTC, submit it and get feedback from the IOTC Secretariat.

The general organisation of the ID is illustrated in Figure 4 below. All the features and usage scenarios are detailed in the following sections.

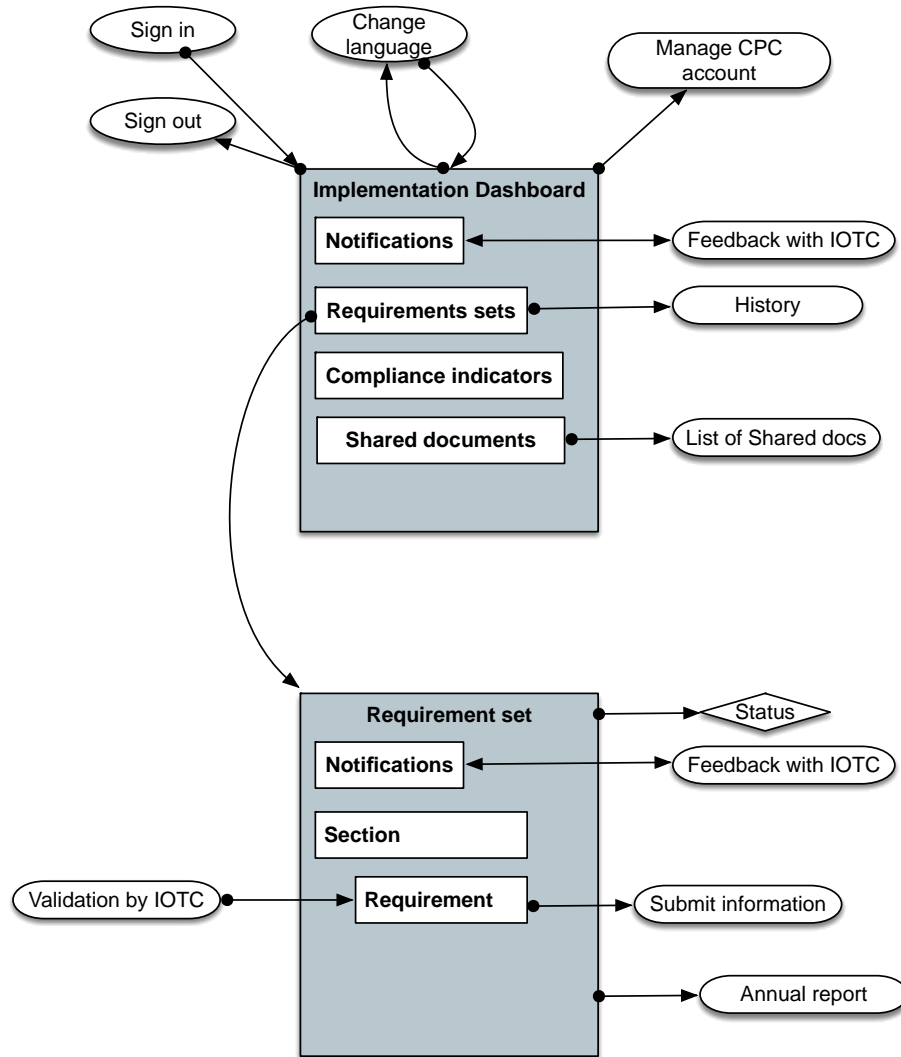


Figure 4. Global organisation of the CPC Implementation Dashboard

## 7.2 Switch languages

### 7.2.1 Scenario

A CPC user wants to change the language in which e-MARIS is displayed/used, namely English or French.

### 7.2.2 Preconditions

The user must be on any e-MARIS page.

Note that e-MARIS is displayed by default in English on first access.

If the user has changed language using the language switcher, that choice is remembered (using a cookie), so that on next access the display language is the last one actively selected by the user.

### 7.2.3 Workflow

1. The user clicks on the language switcher widget available at the top of each page, which shows:
  - a. “en français” if the site is in English
  - b. “in English” if the site is in French

2. The language of the whole site UI is switched to the desired language and the user is returned to the page she was on. If the user was entering data as part of a reporting requirement form, then the form is displayed with all the information as per the last auto-saved state (see 7.14 Submit requested information, documents and data for a requirement).

#### 7.2.4 Results

The whole UI of the e-MARIS site is displayed in the required language.

Note: Some information submitted to IOTC is available in English and French, mostly when dealing with numerical data and code lists (catches by species, gears, vessels types etc.) and answers in forms like yes/no, date etc. Those can be “translated” on the fly in the database (e.g.: a value for YFT catches using LL can be displayed in EN as “Yellowfin tuna / Longline” and in French as “Albacore / Palangre”). Some other information (mostly free text) is available only in the original language it was submitted in and will thus be presented as is, whatever the language selected for using e-MARIS (e.g.: answer to requirements like “*Describe the actions taken, under national legislation, to implement conservation and management measures adopted by the Commission in previous Sessions, and which have not been reported previously.*”)

### 7.3 Sign in to a CPC account

#### 7.3.1 Scenario

A CPC user wants to sign in to e-MARIS.

#### 7.3.2 Preconditions

The user is NOT signed in to e-MARIS.

#### 7.3.3 Workflow

1. The user accesses an e-MARIS page requiring her to sign-in OR The user accesses an e-MARIS page and clicks on the Sign-in button.
2. The system displays the Sign-in dialog.
3. The user enters her credentials (user name and password).
  - a. If the user has forgotten her password, she can click on the “I forgot my password” link.
    - i. A page is displayed asking the user to enter her email address/user name and click a “reset password” link.
    - ii. The user enters the required data and clicks the “reset password” link
      1. if the email address/user name is invalid, the user is returned to the Reset password screen and an error message is displayed.
      2. if the email address/user name is valid, an email is sent to the user’s email address, containing a single-use link to reset the password
        - a. the user clicks on the link in the email
        - b. the system displays a page with a dual password field for the user to choose a new password
        - c. the user enters her new password twice and clicks the “Update password” button
        - d. the system updates the password for that user account
        - e. the system sends an email to the user notifying her of the password change
        - f. the system redirects the user to the login page so she can sign in the system
  - b. The user clicks the “Sign in” button.

4. The system checks the user credentials
  - a. If they are invalid, a message is displayed inviting the user to try again or use the “I forgot my password” link.
  - b. If they are valid, the user is signed-in with the relevant access rights.

#### 7.3.4 Results

The CPC user is signed-in with the relevant access rights and the system displays the screen/page the user was on/was requesting.

The sign in menu/block changes to display the user’s name and a “sign out” button.

### 7.4 Sign out from a CPC account

#### 7.4.1 Scenario

A CPC user wants to sign out from e-MARIS.

#### 7.4.2 Preconditions

The user is signed in to e-MARIS with a CPC account.

#### 7.4.3 Workflow

1. The user clicks on the “sign out” link.
2. The system signs the user out.

#### 7.4.4 Results

The CPC user is signed-out of e-MARIS:

1. The sign out menu/block changes to display a “sign in” button.
2. if the user was on a page with restricted access, the system returns the user to the e-MARIS homepage
3. if the user was on a page without restricted access, the user stays on the same page

#### 7.4.5 Alternative scenario: automatic sign-out

After a given time of inactivity, the system automatically signs the CPC user out.

#### 7.4.6 Alternative workflow

1. A signed-in CPC user does not perform any action in e-MARIS for a given time [30 minutes? to be defined]. Inactivity could be defined as not clicking any button or link, or not typing anything in a text area, etc.
2. The system auto-saves the user’s current work state.
3. The system automatically signs the user out.

#### 7.4.7 Alternative results

1. The system displays a page indicating to the user she has been automatically signed out, as well as a sign in dialog.
2. If the user signs in again, she is brought back directly to the work state she was in when she was signed out. [to be decided]

## 7.5 Manage one's CPC account

### 7.5.1 Scenario

A CPC user wants to manage her e-MARIS CPC account.

### 7.5.2 Preconditions

The user is signed in to e-MARIS with a CPC account.

### 7.5.3 Workflow

1. The user clicks on the “my account” link.
2. The system displays the user's account page
3. On that page the user can:
  - a. change her password
  - b. edit her contact details (name, address, email, phone, position etc.)
4. The user clicks on the “Save changes” button to commit the changes.

### 7.5.4 Results

The CPC user detail changes are saved in the system.

## 7.6 Manage CPC user accounts and access rights

### 7.6.1 Scenario

A CPC administrator user wants to add/edit/delete user accounts for that CPC.

### 7.6.2 Preconditions

The user must be signed-in with a CPC account with administrative privileges. Note that only IOTC administrators can create CPC administrator accounts.

### 7.6.3 Workflow

1. The CPC administrator goes to the “e-MARIS administration” page, selects “Manage user accounts”.
2. The system displays the “Manage CPC user accounts” page for the relevant CPC. This page shows:
  - a. A list of all user accounts for that CPC, each one a link allowing to display/edit it.
  - b. A button to add a CPC user account.
3. The CPC administrator clicks on the “Add account” button:
  - a. The system displays a page allowing to add a new user account to the relevant CPC, with the following fields: login, password, user name, position, institution, address, email, [any other CPC user details as required by IOTC].
    - i. A widget allows the CPC administrator user to select one or more type(s) of information the user is allowed to consult[to be decided]/submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission/information categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
    - ii. For each of the above categories, a widget allows the CPC administrator to indicate whether the user has validation rights on the relevant submissions. Any information submission by a CPC user without validation rights would go in the validation queue and wouldn't be actually submitted until validated. See XXX.



- iii. Note that the CPC administrator cannot give administrator privileges to a CPC user. This can only be done by IOTC administrators.
  - b. The user can click on the CANCEL or ADD account button:
    - i. CANCEL discards all the entered data and returns the user to the “Manage CPC user accounts” screen
    - ii. ADD ACCOUNT saves the entered data and adds a new user account to the CPC, then returns the user to the “Manage CPC user accounts” screen, where the new CPC user account is listed. The new account is immediately activated.
4. The user clicks on the “Edit account” button for a given CPC user account to edit it:
  - a. The system displays the “Edit CPC user account” page allowing to consult/edit the CPC user account details, with the following fields: CPC name (country name), date of a accession, status (CP or CNCP), contact details, login, password, user name, position, institution, address, email, [any other CPC details as required by IOTC].
    - i. A widget allows the CPC administrator user to select one or more type(s) of information the user is allowed to submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission/information categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
    - ii. For each of the above categories, a widget allows the CPC administrator to indicate whether the user has validation rights on the relevant submissions. Any information submission by a CPC user without validation rights would go in the validation queue and wouldn't be actually submitted until validated. See XXX.
    - iii. Note that the CPC administrator cannot give administrator privileges to a CPC user. This can only be done by IOTC administrators.
  - b. The user can then modify the CPC user account details as needed.
  - c. The user can click on the CANCEL or SAVE CHANGES button:
    - i. CANCEL discards all the changes and returns the user to the “Manage CPC user accounts” screen
    - ii. SAVE CHANGES saves the entered data, then and returns the user to the “Manage CPC user accounts” screen, where the edited CPC user account is listed with its new information.
  - d. The “Edit CPC user account” page also offers a “Delete account” button. If the IOTC user clicks on the “Delete account” button:
    - i. the system displays a confirmation dialog asking to “CANCEL” or “DELETE USER ACCOUNT”
    - ii. CANCEL returns the user to the “Manage CPC user accounts” page for the selected CPC with no changes.
    - iii. DELETE USER ACCOUNT deletes the user account from the system, then returns the user to the “Manage CPC user accounts” page for the selected CPC where the deleted account is not listed anymore. [Note: this could be replaced with an “Archive” feature rather than “Delete”, which would make it easier to keep traceability of past user interventions etc.]

#### 7.6.4 Results

The CPC user account details changes are saved and the system is updated accordingly.

## 7.7 Consult the Implementation Dashboard (ID)

### 7.7.1 Scenario

A CPC user accesses the CPC Implementation Dashboard. The Implementation Dashboard is the central hub where each CPC user can:

- Consult notifications
- Consult current submission requirements
- Submit requested documents and data
- Get/send feedback from/to IOTC Secretariat
- Get reminders for upcoming/late requirements
- Generate implementation/national reports
- Consult their Implementation Status
- Consult their Compliance scoreboard and history
- Consult shared documents
- Consult the list of information/reports awaiting validation

### 7.7.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account).

### 7.7.3 Workflow

1. The CPC user directs her browser to the e-MARIS home page and the system displays the Implementation Dashboard.

### 7.7.4 Results

The Implementation Dashboard is displayed, with the following sections:

1. Notifications (with history)
2. Current submission requirements and Implementation status (with history), in the form of “thematic reports” (Implementation report and National Report), that reflect the current practice.
3. Compliance indicators (with history)
4. Manage account
5. Shared documents
6. If the CPC user has validation privileges, a list of information/report submissions pending validation.

## 7.8 Consult notifications

### 7.8.1 Scenario

The Notifications section of the ID shows a list of the last [n] notifications sent by the system to the CPC user.

Notifications include:

- Reminders of upcoming requirement deadline
- Reminders of late requirement submission
- Reminders of upcoming reporting deadline
- Reminders of late report submission
- Feedback from IOTC Secretariat staff
- New requirements added to ID

- Availability of Compliance Report or other reports

### 7.8.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page.

### 7.8.3 Workflow

1. The user consults the Notifications section of the ID home page, showing a list of the last [n] notifications sent by the system to the CPC user, sorted chronologically by most recent. Each line shows:
  - a. the date the notification was produced
  - b. the title/summary of the notification
  - c. a link to the notification itself
  - d. Each new notification for which the user has not consulted the details is marked as “unread”
2. The user can consult the whole list of historical notifications (beyond the [n] recent ones).
  - a. The user clicks on the “more...” or “all notifications” button
  - b. The system displays the Notification history screen showing a list of all notifications, sorted chronologically by most recent, and paginated so that each page shows only [m] notifications, with previous/next buttons
  - c. Each line shows:
    - i. the date the notification was produced
    - ii. the title/summary of the notification
    - iii. a link to the notification itself
    - iv. Each new notification for which the user has not consulted the details is marked as “read”
  - d. The user can filter notification display by type (upcoming deadline, late submission, IOTC feedback...) or by keywords.
3. *Alternative:* The user has received a notification e-mail and has clicked on the “Read notification” link in the mail, which opens the user’s browser to display the notification (Note: if the user was not signed in e-MARIS, the sign in dialog is displayed).
4. The user can consult the details of each notification by clicking on the relevant link.
  - a. The details of the notification are displayed:
    - i. the date the notification was produced
    - ii. the type of notification: upcoming deadline, late submission, IOTC feedback
    - iii. who/what produced the notification: system module, IOTC user...
    - iv. the title/summary of the notification
    - v. the detailed text of the notification
    - vi. link pointing to the notification in context [i.e. alongside the relevant requirement/submission/question...]
    - vii. a Feedback button allowing the user to reply to the notification or ask a question about it
      1. if the user clicks on the Feedback button, the Feedback screen is displayed with:
        - a. Pre-filled fields for date, user name, notification as topic
        - b. Text field so that the user can enter her comment/question
        - c. “Send feedback” button
      2. The user clicks on the “Send feedback” button
        - a. the system sends the message to the relevant IOTC user account (as email + e-MARIS notification)

- b. the feedback appears as a “read” notification in the user’s Notification list.
- viii. If the notification is in reply/follow up to a previous notification (for example a reply by IOTC staff to a user’s question), then below the notification is a list showing the whole notification/discussion thread, in which each notification details can be consulted.
- b. The notification for which the user has consulted the details is marked as “read”.

#### 7.8.4 Results

N/A

### 7.9 Consult Current submission requirements

#### 7.9.1 Scenario

The user consults the list of all current requirements (i.e. for the current year) in her ID.

#### 7.9.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page.

The requirement sets and requirements are shown according to the user’s access rights (e.g. users with only Compliance access will only see requirements with the “compliance” category). Note: to be decided during implementation/testing whether to hide requirements/sets of a category to which the user doesn’t have access rights, or to show them but not allow the user to submit data.

#### 7.9.3 Workflow

1. The Current requirements section of the CPC’s ID shows:
  - a. a main section for each of the annual “reports” (or Requirements sets) that CPCs have to report on (at the moment, Implementation report and National Report).
  - b. for each “Requirements set”,
    - i. a list of [n] late/coming soon requirements for the current year, sorted by deadline (ascending: sooner to later, with late submissions always at the top) and showing for each the deadline and title as well as a link to the relevant requirement submission page
    - ii. a button to show the set’s Current requirements page
    - iii. status icons/indicators (see 7.16 Consult Reporting Status)
    - iv. a button to show the Implementation history page
  - c. A search/filter widget, allowing CPC users to search/filter for current requirements by topics/keywords (e.g.: show all upcoming requirements related to Yellowfin+statistics+longline). Using this would return a list of all current requirements which have been tagged with the relevant keywords.
  - d. A link to consult the “Global Reporting Status” page (see XXX).
2. The “Report Current requirements” page for each Requirements set shows a list of ALL requirements for the current year, organised by Major Sections (as in current Implementation Reports and National reports). Note: major Sections can be subdivided in sub-sections (e.g.: in the National Report, the “Information on fisheries, research and statistics” section is subdivided in 9 subsections).
  - a. Implementation report:
    - i. Section A: requirements relevant to NEW CMMs.

- ii. Section B: requirements relevant to CMMs the CPC has not reported upon in the previous years (built automatically)
      - iii. Section C: Data and information reporting requirements (catches, reports, documents...)
    - b. National report:
      - i. Mandatory Statistics
      - ii. Information on fisheries, research and statistics
3. Each section shows:
  - a. A Section title (e.g. “*Section A: new CMMs*”)
  - b. A Section description (e.g.: “*Describe the actions taken, under national legislation, in the previous year to implement conservation and management measures adopted by the Commission at its [PREVIOUS YEAR] Session*”)
  - c. A Section status indicator, showing whether all requirements in this section have been fulfilled or not and whether there are any exceeded deadlines for submission in this section (see 7.16 Consult Reporting Status).
  - d. The notification status for this section (see 7.15 Send feedback/request help to IOTC Secretariat):
    - i. A button allowing the user to contact the IOTC Secretariat about this section
    - ii. whether the user has submitted any question about it to the IOTC Secretariat.
    - iii. whether the user has received any new/unread notification from the IOTC Secretariat about this section.
    - iv. A button allowing to display the notification thread about this section
  - e. A button to display the Section page with all its requirements and submit required information.
4. Within each section is a list of all requirements under this section for the given year.  
Requirements are:
  - a. Sorted by the order that was decided by IOTC staff when editing the requirements
  - b. Sortable by deadline (sooner to later), so that the user can see which are the most urgent requirements.
5. Each requirement in the list shows:
  - a. The title of the requirement
  - b. The deadline for the requirement, along with number of days remaining until deadline.
  - c. The status of the requirement, showing whether the requirement has been fulfilled/submitted or not and whether its deadline for submission has been exceeded (see 7.16 Consult Reporting Status)
  - d. The notification status for this requirement:
    - i. A button allowing the user to contact the IOTC Secretariat about this requirement
    - ii. whether the user has submitted any question about it to the IOTC Secretariat.
    - iii. whether the user has received any new/unread notification from the IOTC Secretariat about this requirement.
    - iv. A button allowing to display the notification thread about this requirement
  - e. A button to open the Requirement page and submit the relevant information/data.
6. The “Report Current requirements” page also shows an “Annual reports” section which shows, for each report (Implementation/National):
  - a. if the CPC has not yet submitted their annual report:
    - i. a button to do so (see 7.18 Generate/submit Annual Report)
  - b. if the CPC has already submitted their annual report:
    - i. the title of the report (e.g.: “Malaysia 2016 Implementation report”)
    - ii. a link to view the submitted report
      1. this links to a read-only web display of the report, complete with links to the various uploaded documents/files

2. the “view report” page offers buttons to download the report (see below) as well as consult the previous versions (if the report has been updated), if any.
- iii. a link to download the submitted report
  1. this opens a dialog asking whether the user wants to download:
    - a. a simple PDF copy of the report or
    - b. a ZIP archive containing the PDF copy of the report along with all the uploaded documents/files.
  - iv. the date of submission
  - v. a button to update/generate a new report: if the user has updated the information/data required for the current year after having submitted their annual report (maybe in reply to feedback from IOTC), they can update their report and submit it again
- c. A feedback widget allowing discussion between the CPC user and the IOTC Secretariat about the report.

#### 7.9.4 Results

N/A

### 7.10 Consult the Implementation history page

#### 7.10.1 Scenario

The user wants to consult information about the Implementation of IOTC requirements in the previous years.

#### 7.10.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page or on the Current requirements page for a given report.

The CPC must have at least one year of history in the system.

#### 7.10.3 Workflow

1. The user clicks on the History button on the CPC’s ID or on the Current requirements page.
2. The system displays the History page, which shows the previous year’s Implementation details and a selector allowing the user to display another year’s History.
3. The History page shows, for a given year:
  - a. a link to download that year’s IR, NR and CR in PDF format
  - b. a summary of the implementation/compliance status for that year
  - c. a read-only version of the relevant year’s Requirements page, complete with the CPC’s information/data submissions (including attached documents, notification threads etc.)

#### 7.10.4 Results

N/A

### 7.11 Consult the Reporting Status page

#### 7.11.1 Scenario

The user wants to view the page which shows a list of all CPCs, along with their current reporting status.

### 7.11.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page or on the Current requirements page for a given report.

### 7.11.3 Workflow

1. The user clicks on the Global Reporting Status button on the CPC's ID or on the Current requirements page.
2. The system displays the Global Reporting Status page, which shows a list of all CPCs, along with their current reporting status. This would adopt a similar layout as the "Reporting and Compliance status" section of the IOTC Compliance Dashboard (see 8.15 Consult reporting and compliance status for each CPC), but only show a the "Reporting status" column.

### 7.11.4 Results

N/A

## 7.12 Consult Shared documents

### 7.12.1 Scenario

The user consults a page which lists all documents that have been shared with the user by the system.

This includes submission reports (e.g. Implementation Reports) and assessment reports (e.g. Compliance reports).

From there the user can view an individual document/report and send feedback on it to IOTC, the relevant CPC and/or all the CPCs.

### 7.12.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page.

The CPC must have at least one document shared with them.

### 7.12.3 Workflow

1. Whenever a document or group of documents is shared with a CPC
  - a. that CPC users will receive a notification about the sharing, including a direct link to their Shared documents page;
  - b. the "Shared documents" block on the CPC's ID will be updated with the latest shared document, including a direct link to their Shared documents page.
2. The user clicks on the Shared document link in the Notification block or in the Shared documents block on the CPC's ID page.
3. The Shared documents page is displayed, showing:
  - a. a list of shared documents, sorted by most recent to oldest: each entry in the list shows the date of sharing and the title of the document and is a link to view the document itself.
  - b. each shared document that has never been viewed by the CPC user is visually marked as "new/unread" (preferably with the same visual clues as with the "unread" notifications).
  - c. the list is paginated and allows to go back through the whole history of shared documents.
  - d. a filter widget allows to user to search for shared documents based on:
    - i. date (from/to? year?)
    - ii. free text search on document title

- iii. show: “Everyone’s documents” (default), “My documents” (i.e. shared documents regarding the CPC), or “Other CPCs’ documents” (i.e. shared documents regarding other CPCs)
    - iv. show: “All documents”, “Implementation Reports”, “Compliance Reports”, any other documents types that might be shared through the system.
  4. Clicking on a shared document entry in the list:
    - a. marks the document as “read” instead of “unread”
    - b. displays the Shared document page.
  5. The Shared document page shows:
    - a. Metadata about the shared document: date, title, source, type of document, status of document (draft vs final)
    - b. A link to download the document.
    - c. Possibly, a web-based display of the document (for example read-only view of a CPC’s CR). [would this be useful?]
    - d. A feedback section allowing the CPC to send feedback on this document to IOTC, to a particular CPC (with copy to IOTC) or to all CPCs (with copy to IOTC).

## 7.13 Get reminders for upcoming/late requirements

### 7.13.1 Scenario

The system sends a notification to the user to inform her that there is a deadline for submission coming soon or that has been exceeded.

### 7.13.2 Preconditions

There is a submission requirement which deadline approaches/has been exceeded and the user has not submitted the required information.

Optional: The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the Implementation Dashboard home page.

The reminders are sent according to the user’s access rights. Note: to be decided during implementation/testing whether to send reminders for reminder of a given information category (compliance, science) to all users, or only to users which have access rights for that category.

### 7.13.3 Workflow

1. The user is notified of the upcoming deadline/late submission:
  - a. By email: an email is sent to the user’s email account containing the text of the notification, with a link to consult the notification on the user’s ID.
  - b. In the Notifications section of the Implementation Dashboard.
2. The notification contains:
  - a. Type of notification: upcoming deadline or late for submission
  - b. Date of deadline, along with number of days remaining until deadline.
  - c. Title of the requirement
  - d. Description of the requirement
  - e. Link to the requirement on the CPC’s ID.
3. The user clicks on the link to view the relevant notification.
4. The system displays the relevant notification screen.
  - a. *Variant:* if the user is not signed in, the system displays the sign-in screen. After the user has successfully entered her credentials and has been signed in, the system displays the notification screen.



5. The user can click on the link to the requirement mentioned in the notification to act on the reminder.

#### 7.13.4 Results

1. The user has consulted the notification.
2. The notification is marked as “read”.
3. The user can take the relevant actions related to the notification.

### 7.14 Submit requested information, documents and data for a requirement

#### 7.14.1 Scenario

The CPC user wants to submit the information, documents and/or data for a given requirement.

#### 7.14.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on a page showing a link to a current Requirement like the Implementation Dashboard home page, the Report Current requirements page for a report or a requirement notification email.

The requirement sets and requirements are shown according to the user’s access rights (e.g. users with only Compliance access will only see requirements with the “compliance” category). Note: to be decided during implementation/testing whether to hide requirements/sets of a category to which the user doesn’t have access rights, or to show them but not allow the user to submit data.

#### 7.14.3 Workflow

1. The user clicks on the link to submit the requested information:
  - a. Title of Requirement on ID home page and Current requirements page,
  - b. “Submit requested information” link in a notification email.
2. The system displays the relevant Requirement page, which shows:
  - a. The Section to which the requirement belongs (A, B or C) along with the Section description (see 7.6 Manage CPC user accounts and access rights)

#### 7.14.4 Scenario

A CPC administrator user wants to add/edit/delete user accounts for that CPC.

#### 7.14.5 Preconditions

The user must be signed-in with a CPC account with administrative privileges. Note that only IOTC administrators can create CPC administrator accounts.

#### 7.14.6 Workflow

5. The CPC administrator goes to the “e-MARIS administration” page, selects “Manage user accounts”.
6. The system displays the “Manage CPC user accounts” page for the relevant CPC. This page shows:
  - a. A list of all user accounts for that CPC, each one a link allowing to display/edit it.
  - b. A button to add a CPC user account.
7. The CPC administrator clicks on the “Add account” button:
  - a. The system displays a page allowing to add a new user account to the relevant CPC, with the following fields: login, password, user name, position, institution, address, email, [any other CPC user details as required by IOTC].

- i. A widget allows the CPC administrator user to select one or more type(s) of information the user is allowed to consult[to be decided]/submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission/information categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
        - ii. For each of the above categories, a widget allows the CPC administrator to indicate whether the user has validation rights on the relevant submissions. Any information submission by a CPC user without validation rights would go in the validation queue and wouldn't be actually submitted until validated. See XXX.
        - iii. Note that the CPC administrator cannot give administrator privileges to a CPC user. This can only be done by IOTC administrators.
      - b. The user can click on the CANCEL or ADD account button:
        - i. CANCEL discards all the entered data and returns the user to the “Manage CPC user accounts” screen
        - ii. ADD ACCOUNT saves the entered data and adds a new user account to the CPC, then returns the user to the “Manage CPC user accounts” screen, where the new CPC user account is listed. The new account is immediately activated.
8. The user clicks on the “Edit account” button for a given CPC user account to edit it:
  - a. The system displays the “Edit CPC user account” page allowing to consult/edit the CPC user account details, with the following fields: CPC name (country name), date of a accession, status (CP or CNCP), contact details, login, password, user name, position, institution, address, email, [any other CPC details as required by IOTC].
    - i. A widget allows the CPC administrator user to select one or more type(s) of information the user is allowed to submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission/information categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
    - ii. For each of the above categories, a widget allows the CPC administrator to indicate whether the user has validation rights on the relevant submissions. Any information submission by a CPC user without validation rights would go in the validation queue and wouldn't be actually submitted until validated. See XXX.
    - iii. Note that the CPC administrator cannot give administrator privileges to a CPC user. This can only be done by IOTC administrators.
  - b. The user can then modify the CPC user account details as needed.
  - c. The user can click on the CANCEL or SAVE CHANGES button:
    - i. CANCEL discards all the changes and returns the user to the “Manage CPC user accounts” screen
    - ii. SAVE CHANGES saves the entered data, then and returns the user to the “Manage CPC user accounts” screen, where the edited CPC user account is listed with its new information.
  - d. The “Edit CPC user account” page also offers a “Delete account” button. If the IOTC user clicks on the “Delete account” button:
    - i. the system displays a confirmation dialog asking to “CANCEL” or “DELETE USER ACCOUNT”
    - ii. CANCEL returns the user to the “Manage CPC user accounts” page for the selected CPC with no changes.
    - iii. DELETE USER ACCOUNT deletes the user account from the system, then returns the user to the “Manage CPC user accounts” page for the selected CPC where the deleted account is not listed anymore. [Note: this could be replaced with an “Archive” feature rather than “Delete”, which would make it easier to keep traceability of past user interventions etc.]

### 7.14.7 Results

The CPC user account details changes are saved and the system is updated accordingly.

- b. Consult the Implementation Dashboard (ID))
- c. The title of the requirement
- d. A reference to the IOTC CMM in which this requirement is mentioned
- e. The description of the requirement
- f. The deadline for the requirement
- g. The mandatory/desirable status of this requirement
- h. The status of the requirement, showing whether the requirement has been fulfilled or not and whether its deadline for submission has been exceeded
- i. The notification status for this requirement:
  - i. A button allowing the user to contact the IOTC Secretariat about this requirement
  - ii. whether the user has submitted any question about it to the IOTC Secretariat.
  - iii. whether the user has received any new/unread notification from the IOTC Secretariat about this requirement.
  - iv. A button allowing to display the notification thread about this requirement
- j. The actual information items that the CPC is required to submit according to this requirement. Each information item can be composed of the following information widgets which can be combined to reflect what the CPC has to report under this requirement:
  - i. Not applicable checkbox: if the requirement is not applicable to the CPC, check this box (and fill the accompanying “specify the reason” text field). If this checkbox is selected, then all other fields in the requirement will be deactivated/hidden.
  - ii. Free text entry in a text area, with rich text editing capability: the CPC user can freely answer the question through text.
  - iii. Numerical value entry field
  - iv. Document submission: a simple File upload widget allowing the user to select a file on her computer and upload it to the e-MARIS system. There can be a limitation imposed on the file types (e.g. PDF, DOC, DOCX, XLSX...) and file size (through a client-side file-size check). If the requirements allows for it, the user can click on an “add another file” button that inserts another file upload widget. Note: this could also be done with a file picker/drag-and-drop widget allowing single/multiple files uploads.
  - v. Data file submission: a File upload widget allowing the user to select a file on her computer and upload it to the e-MARIS system. This is slightly different from the Document item as IOTC could restrict the accepted file types to “data formats” (e.g.: XLS, CSV...) to ensure data are submitted in an exploitable format. If the requirements allows for it, the user can click on an “add another file” button that inserts another file upload widget. Note: this could also be done with a file picker/drag-and-drop widget allowing single/multiple files uploads.
  - vi. Yes/No radio buttons.
  - vii. Date selectors: Date widget offering free date entry or a date picker
  - viii. Multiple selection checkboxes groups (e.g.: “Nil report, specify the reason: No large scale longline vessels on IOTC RAV / Do not export frozen BET”)
  - ix. Information tables: an information table can contain a given number of rows each asking the same information about different topics (e.g.: Nb of vessels monitored

and Coverage for a list of gear types). Some rows can be fixed at the moment of the creation of the requirement by IOTC Staff (e.g.: purse seine, longline, gillnet) but the widget can allow the user to add as many additional rows as needed (e.g. for gear types not listed in the widget).

- k. Each item can be accompanied by a description/help text to explain clearly to the user what she has to do/submit, and preferably with a reference to the corresponding CMM paragraph. Note: for document/data file items, the description could/should include a link to the relevant document template.
- l. Auto-save: while the user fills information, each entry is auto-saved by the system, at regular intervals and/or on specific actions (like changing the focus to another form field, uploading a file...). If for some reason the user cannot continue information entry (browser crash, internet connectivity loss, session timeout...) then the requirement will be displayed in the Current Requirements page as “saved” or “draft” and the user can resume it as explained below.
- m. The user fills the required information as needed and can:
  - i. Save the current Requirement to resume filling it later:
    - 1. the user clicks on the Save button and the system saves the state of the requirement
    - 2. the user can now navigate safely away from the requirement page
    - 3. the requirement will be displayed in the Current Requirements page as “saved” or “draft”
    - 4. to resume filling the requirement, the user simply has to click on it and it will be displayed in the same state as it was Saved.
  - ii. Print/export a preview of the requirement and the information filled in by the user, so that it can be shared with colleagues, managers etc.
  - iii. Submit the information for that requirement by clicking on the Submit button
    - 1. the system will check that all mandatory information has been provided:
      - a. if some required item has not been filled, then an error message will be displayed informing the user and the relevant field(s) will be highlighted
    - 2. if all required fields have been filled, then the system will submit the requirement and the information will be updated in the system, along with all required metadata (submitting CPC and user, date of submission...)
      - a. If the CPC user submitting the information does not have Validation privileges, then the information will be marked as “Pending validation” and will be added to the Validation queue, while a notification will be sent to the CPC users with Validation privileges. See XXX.
    - 3. The user will be redirected to the Current requirements page where she can submit information for the other requirements.
    - 4. the requirement will be marked as
      - a. if the user had validation role on this information, FULFILLED/SUBMITTED and the Implementation and Compliance status will be updated accordingly.
      - b. If the user doesn’t have validation role on this information, PENDING VALIDATION until a CPC user with validator role approves the submission.
    - 5. the IOTC staff will then be notified through email and/or the e-MARIS Compliance Dashboard.

#### 7.14.8 Results

- The user has submitted information relevant to one or several requirements.
- The relevant information has been saved in the e-MARIS application.
- The IOTC staff has been notified
- The relevant requirement is marked as fulfilled in the ID.

#### 7.14.9 Alternative Scenario

The CPC user wants to edit the information, documents and/or data already submitted for a given requirement.

#### 7.14.10 Alternative Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on a page showing a link to a current Requirement like the Implementation Dashboard home page, the Current requirements page or a requirement notification email.

The user must have already submitted at least one requirement.

Only Current requirements are editable: previous years' requirements are definitely read-only.

#### 7.14.11 Alternative Workflow

1. The user consults the Current requirements page and selects a requirement that has already been submitted (clearly marked as such).
2. The user clicks on the selected requirement.
3. The system displays the relevant Requirement page, in read only mode. That page shows:
  - a. the submission status of the requirement (“Submitted”)
  - b. the date of submission
  - c. an “Edit” button
4. The user clicks on the Edit button and the Requirement page switched to edit/submission mode, just like with resuming a saved/auto-saved requirement submission.
  - a. Option: a CLEAR/RESET button could be displayed to allow the user to clear the content already submitted and start from scratch.
5. When the user SUBMITS the changes to the requirement information:
  - a. the requirement status changes to “Submitted on [date of first submission] / Edited on [date of last edit]”
  - b. a link is displayed to consult the history of edits to the requirement:
    - i. clicking this link shows a table listing, sorted by date, descending, all edits that have been done by the CPC user: each row of the table contains the following details: date of edit, user doing the edit, content/value (displayed in the same way as when displaying a submitted requirement). This also includes the original content/value that had been submitted by the CPC.

#### 7.14.12 Alternative Results

- The edits to the requirement information are submitted to e-MARIS and saved.
- The IOTC staff has been notified of the edits.
- The relevant requirement is marked as fulfilled in the ID.
- The relevant requirement is marked as edited in the Current requirements page.
- The history of edits is updated for that requirements.

## 7.15 Send feedback/request help to IOTC Secretariat

### 7.15.1 Scenario

The user sends a message/question to the IOTC Secretariat about a particular topic and gets a response.

Note: receiving feedback from the Secretariat/system is covered in 7.8 Consult notifications.

### 7.15.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on a page showing a Feedback section/button.

### 7.15.3 Workflow

1. The Feedback section is available on the following page elements:
  - a. Current Requirements page
  - b. Individual requirement page
  - c. Notification block
2. The Feedback section can be “triggered” by:
  - a. An automatic notification sent by the system
  - b. A manual message sent by the IOTC Secretariat
  - c. A manual message sent by a CPC user
3. To send a message to the IOTC Secretariat, the CPC user can:
  - a. Reply to a notification (automatic or from IOTC staff)
    - i. When a notification is received by the user, it appears in their Notifications block as well as in their email inbox (see 7.8 Consult notifications), along with a “Reply/Get help” button.
    - ii. The user clicks on the “Reply/Feedback” button which opens the feedback widget, contextualized from the notification
    - iii. Alternative: the user can reply to a notification by replying to the notification email in their email client. This feature would follow the common practice of having each notification email include a unique ID in the topic line or the sender’s email address and replying to the email by adding the reply above the notification email’s text. This sends the reply email to a specific email address that is monitored by e-MARIS, and adds it to the notification thread.
  - b. Start a conversation from a “Feedback/Get help” button
    - i. From any page element that allows it, the user clicks on the “Reply/Get help” button which opens the feedback widget, contextualized from the page element (e.g.: if the user is submitting information related to a given CMM requirement asking for data in Section C, then the feedback will be attached to that)
4. The feedback widget allows the user to:
  - a. enter a title/subject for their feedback
  - b. enter the feedback text using a rich text editor
  - c. attach any number of files/documents
  - d. Submit their feedback
5. Once the feedback has been submitted, it appears in the Notification/History of the relevant page element it is related to, as well as in the Notification/History sections of the ID home page and Current Requirements section (marked as “read”). An email is also sent to the recipient email address, with a copy of the notification and a link to consult it in the system.
6. When the IOTC Secretariat replies to the user’s feedback, the reply appears as an unread notification in the user’s Notification/History (see 7.8 Consult notifications).

#### 7.15.4 Results

The user feedback is notified/sent to the IOTC Secretariat.

The user feedback is added to the notification/history.

Note: all notifications are visible in the Notifications/Feedback sections of ALL the user accounts of a given CPC (i.e. they are not sent to a particular user account, but to a given CPC as a whole): if Seychelles\_user\_1 reads a notification and replies to it, then Seychelles\_user\_2 (and all other Seychelles users) will see that notification as Read when they sign in, along with the reply in the Notification thread.

### 7.16 Consult Reporting Status









#### 7.16.1 Scenario






The user can view the reporting status for the various sections and individual requirements to get a clear picture of the CPC's current reporting status

#### 7.16.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) and be on the ID home page, on a Report page, on a Section page or on a Requirement page (including historical pages).

#### 7.16.3 Workflow

1. A visual indicator of the current level of reporting for the CPC is displayed:
  - a. On the ID home page and on the “Report Current requirements”, under the “Report Current requirements” title, related to ALL current requirements.
  - b. On the “Report Current requirements” page, under each Section of the “Current requirements” title, related to each section's current requirements.
2. The visual indicator of the current level of reporting for the CPC is composed of:
  - a. A “progress bar” and a numerical percentage, reflecting the ratio of requirements that have been reported on vs the total number of requirements. The progress bar could be color-coded to reflect the reporting status, for example one colour per each range of 25% (0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green). For example, if there is a total of 57 reporting requirements in 2017 and the CPC has reported on 40 of them, the Reporting status indicator would look like this:  70% .
  - b. A reporting status icon:
    - i.  a yellow clock icon if any of the requirements haven't been reported yet and a deadline is near.
    - ii.  a red clock icon if any of the requirements haven't been reported yet and a deadline is passed.
    - iii.  a green checkmark if all the requirements have been satisfactorily reported.
    - iv.  a red checkmark if all the requirements have been satisfactorily reported but after the deadline.
    - v.  a red warning sign if a requirement has been reported upon but the IOTC Secretariat staff has flagged the information submitted as not satisfactory (this would also send a notification to the CPC)
    - vi.  a blue “pencil” icon to indicate that there is one or more requirements which have been started and saved for later resuming.
3. On an individual requirement page, a visual indicator also reflects the implementation status:
  - a. nothing displayed if the requirement hasn't been reported yet and the deadline is not near.
  - b.  a yellow clock icon if the requirement hasn't been reported yet and the deadline is near.

- c.  a red clock icon if the requirement hasn't been reported yet and the deadline is passed.
- d.  a green checkmark if the requirement has been reported.
- e.  a red checkmark if the requirement has been reported after the deadline.
- f.  a red warning sign if the requirement has been reported upon but the IOTC Secretariat staff has flagged the information submitted as not satisfactory (this would also send a notification to the CPC).
- g.  a blue “pencil” icon to indicate that the requirement has been started and saved for later resuming.

#### 7.16.4 Results

N/A

### 7.17 Consult Compliance indicators and history

#### 7.17.1 Scenario

The CPC user consults compliance indicators offered by the Compliance Scoreboard, allowing her to get an overall picture of their compliance level.

#### 7.17.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account).

#### 7.17.3 Workflow

1. The ID home page shows a section called “Compliance indicators” which displays:
  - a. a selection of indicators related to the current compliance level of the CPC:
  - b. a “see more...” button allowing to display a more comprehensive set of “Compliance indicators”
2. The user clicks on the “see more...” button and the Compliance indicators/Compliance scoreboard is displayed for the current year, showing:
  - a. a comprehensive set of Compliance indicators:
    - i. tables/numerical indicators
    - ii. charts
  - b. a “History” widget allowing to consult the compliance history of the CPC
    - i. display the Compliance indicators for any given year
    - ii. compare two given years: side by side display of Compliance indicators for both years
    - iii. compare all years: trend charts/tables for all compliance indicators across all years
  - c. a “download” button allows the user to download a PDF copy of the Compliance scoreboard or history display as well as the CR for that year, if available.

#### 7.17.4 Results

N/A

### 7.18 Generate/submit Annual Reports

#### 7.18.1 Scenario

The CPC user wishes to submit their Implementation/National report for the current year



### 7.18.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account).

The CPC user must be satisfied that they have submitted all the information and data required as part of the annual Implementation//National report.

The CPC user must be on the “Report Current requirements page” (see 7.9 Consult Current submission requirements).

### 7.18.3 Workflow

1. To submit their annual report, the user clicks on the “Submit Implementation Report” or “Submit National Report” button (see 7.9 Consult Current submission requirements above):
  - a. a confirmation dialog is displayed showing:
    - i. a list of any information/data required for that report that hasn’t been submitted yet or that has been marked as not satisfactory by IOTC, warning the user about the fact that some information is missing
    - ii. an “Additional comments” field allowing the CPC user to enter text related to the report to be submitted.
    - iii. a Submit/Cancel button
    - iv. A button to Print/export a preview of the report as it would be generated by the system, so that it can be shared with colleagues, managers etc.
    - v. A “Send a copy to” widget, allowing the user to enter a list of email addresses to which a PDF copy of the report would be sent by email.
  - b. if the user has validation rights and clicks the “Submit” button, the report is generated and submitted:
    - i. the submission status for that CPC is marked as “submitted” in the Implementation Dashboard (for CPC user) and in the Compliance Dashboard (for IOTC staff)
    - ii. a PDF version of the IR or NR is generated and stored (note: other document formats may be generated, as needed).
    - iii. a new report notification is generated and sent to the IOTC staff and appears as read in the user’s Notification/History
    - iv. subject to possible IOTC validation (see 8.16 Publish CPC reports), if the template for this report defines it so, the report is automatically shared with its share recipients list (see 8.22 Automatic document sharing).
    - v. the “Annual reports” section is updated accordingly (see above).
    - vi. If any email recipients were added (see above), a copy of the report, along with any included data files, documents... is sent by email to the listed recipients.
  - c. If the user does not have validation rights and clicks the “Submit” button,
    - i. the report is generated as a draft and marked as PENDING VALIDATION and is placed in the Validation queue
    - ii. a notification is sent to the CPC validators, indicating that the report is pending validation.
2. To submit an updated version of their annual report, the user clicks on the “update/generate a new report” button, then follows the same procedure as for submitting the first report (above):
  - a. The confirmation dialog includes a message indicating that a version of that report has already been submitted and that this version of the report will replace the existing one.
  - b. If the user has validation rights and confirms, the new version is generated and:
    - i. the submission status for that CPC is marked as “submitted” in the Implementation Dashboard (for CPC user) and in the Compliance Dashboard (for IOTC staff)

- ii. a PDF version of the new IR or NR is generated and stored
    - iii. an update notification is generated and sent to the IOTC staff and appears as read in the user’s Notification/History
    - iv. the “Annual reports” section is updated accordingly (see above), to show the new report as well as the version history.
  - c. If the user does not have validation rights and confirms,
    - i. the updated report is generated as a draft and marked as PENDING VALIDATION and is placed in the Validation queue
    - ii. a notification is sent to the CPC validators, indicating that the updated report is pending validation.
- 3.

## 7.19 Validate information and report submissions

### 7.19.1 Scenario

A CPC user with Validation rights consults the list of information/reports pending validation and validates or rejects publication of said information/report.

### 7.19.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account) with the appropriate Validator privileges.

### 7.19.3 At least one information/report must be pending validation. Workflow

1. The user is notified of the availability of information/report submission pending validation:
  - a. By email: an email is sent to the user’s email account containing the text of the notification.
  - b. In the Notifications section of the Implementation Dashboard.
  - c. In the Validation queue section of the ID.
2. The notification contains:
  - a. Title of the notification: “Information/report submission pending validation: [title of the requirement/report]”
  - b. Description of the notification: some explanatory text about the submission awaiting validation.
  - c. A link to the notification on the CPC’s ID.
3. The user clicks on the link to view the relevant notification.
4. The system displays the Validation queue, which shows a list of all submissions pending validation:
  - a. Date of submission (sorted descending)
  - b. Title of the submission (requirement or report title)
  - c. Deadline for submission (along with number of days remaining)
  - d. CPC user who submitted the information/report
5. The CPC user selects an information/report to validate.
6. The system displays the relevant requirement/report in a mode similar to that used to submit information for a requirement or a report, with an added VALIDATE button.
7. If the Validator user is not satisfied with the submission, then an internal discussion will have to take place with the Submitting user (which will not be handled within e-MARIS, at least at first), who will have to update the submission accordingly.
8. If the Validator user is satisfied with the submission, she clicks the VALIDATE button and the information/report is submitted:

- a. All actions/results described in 7.14 Submit requested information, documents and data for a requirement and 7.18 Generate/submit Annual Reports are implemented
- b. A notification is sent to the submitting user [or to all of the CPC users?] to let them know the submission has been validated.
- c. The information/report is removed from the validation queue.

## 7.20 Receive Annual Compliance Report

### 7.20.1 Scenario

The user is notified that the IOTC Secretariat has compiled and produced their Annual Compliance report and can consult the report.

### 7.20.2 Preconditions

The CPC user must be signed-in with a CPC account (see 7.3 Sign in to a CPC account).

The IOTC Secretariat must have completed and sent the Annual Compliance Report for that CPC.

### 7.20.3 Workflow

1. The user is notified of the availability of the Annual Compliance report:
  - a. By email: an email is sent to the user's email account containing the text of the notification.
  - b. In the Notifications section of the Implementation Dashboard.
2. The notification contains:
  - a. Title of the notification: "The [YEAR] Compliance Report for [CPC NAME] is available"
  - b. Description of the notification: some explanatory text about the availability of the report.
  - c. A link to the notification on the CPC's ID.
3. The user clicks on the link to view the relevant notification.
4. The system displays the relevant notification screen, which offers a link to download the CR as a PDF document.
5. The PDF of the CR is also available for download from the Compliance Indicators section of the Implementation Dashboard (see 7.17 Consult Compliance indicators and history), as well as in the History section (see 7.10 Consult the Implementation history page).

### 7.20.4 Results

N/A

## 8 Compliance Dashboard for IOTC

### 8.1 Global organisation

Note: although the CPC user-facing system is available in both English and French, the IOTC-facing interface described below is available in English only.

The Compliance Dashboard is the central hub for IOTC users to perform all features related to the operation and administration of e-MARIS: managing users, managing requirements sets and requirements, receiving CPC submissions, interacting with CPCs, validating CPC submissions and producing analytical reports, perform system administration tasks...

The general organisation of the Compliance Dashboard is illustrated in Figure 5 below. All the features and usage scenarios are detailed in the following sections.

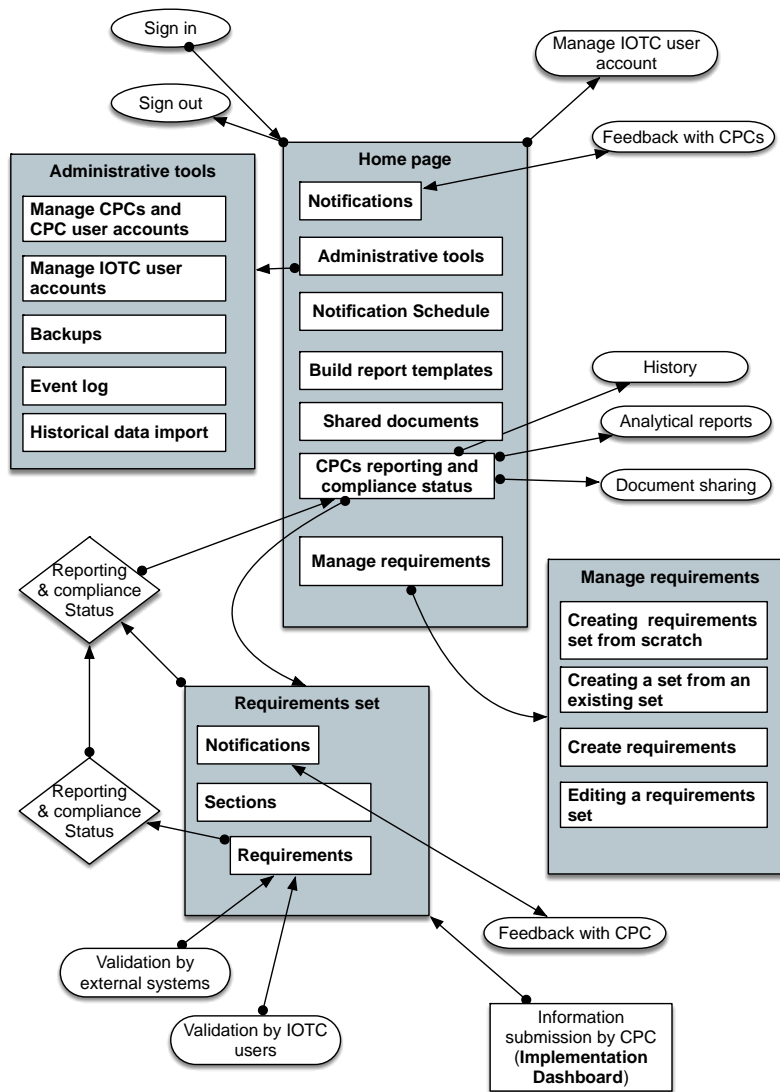


Figure 5. Global organisation of the IOTC Compliance Dashboard

## 8.2 Sign in to an IOTC account

### 8.2.1 Scenario

An IOTC user wants to sign in to e-MARIS.

### 8.2.2 Preconditions

The user is NOT signed in to e-MARIS.

### 8.2.3 Workflow

1. The user accesses an e-MARIS page requiring her to sign-in OR the user accesses an e-MARIS page and clicks on the Sign-in button.
2. The system displays the Sign-in dialog.
3. The user enters her credentials (user name and password).
  - a. If the user has forgotten her password, she can click on the “I forgot my password” link.
    - i. A page is displayed asking the user to enter her email address/user name and click a “reset password” link.
    - ii. The user enters the required data and clicks the “reset password” link
      1. if the email address/user name is invalid, the user is returned to the Reset password screen and an error message is displayed.
      2. if the email address/user name is valid, an email is sent to the user’s email address, containing a single-use link to reset the password
        - a. the user clicks on the link in the email
        - b. the system displays a page with a dual password field for the user to choose a new password
        - c. the user enters her new password twice and clicks the “Update password” button
        - d. the system updates the password for that user account
        - e. the system sends an email to the user notifying her of the password change
        - f. the system redirects the user to the login page so she can sign in the system
  - b. The user clicks the “Sign in” button.
4. The system checks the user credentials
  - a. If they are invalid, a message is displayed inviting the user to try again or use the “I forgot my password” link.
  - b. If they are valid, the user is signed-in with the relevant access rights.

### 8.2.4 Results

The IOTC user is signed-in with the relevant access rights and the system displays the screen/page the user was on/was requesting.

## 8.3 Sign out from an IOTC account

### 8.3.1 Scenario

An IOTC user wants to sign out from e-MARIS.

### 8.3.2 Preconditions

The user is signed in to e-MARIS with an IOTC account.

### 8.3.3 Workflow

1. The user clicks on the “sign out” link.
2. The system signs the user out

### 8.3.4 Result

The IOTC user is signed-out of e-MARIS:

1. if the user was on a page with restricted access, the system returns the user to the e-MARIS homepage
2. if the user was on a page without restricted access, the user stays on the same page

### 8.3.5 Alternative scenario: automatic sign-out

After a given time of inactivity, the system automatically signs the IOTC user out.

### 8.3.6 Alternative workflow

1. A signed-in IOTC user does not perform any action in e-MARIS for a given time [30 minutes? to be defined]. Inactivity could be defined as not clicking any button or link, or not typing anything in a text area, etc.
2. The system auto-saves the user's current work state.
3. The system automatically signs the user out.

### 8.3.7 Alternative results

1. The system displays a page indicating to the user she has been automatically signed out, as well as a sign in dialog.
2. If the user signs in again, she is brought back directly to the work state she was in when she was signed out. [to be decided]

## 8.4 Manage IOTC user account

### 8.4.1 Scenario

An IOTC user wants to manage her e-MARIS IOTC account.

### 8.4.2 Preconditions

The user is signed in to e-MARIS with an IOTC account.

### 8.4.3 Workflow

1. The user clicks on the "my account" link.
2. The system displays the user's account page
3. On that page the user can:
  - a. change her password
  - b. edit her contact details (name, address, email, phone, position etc.)
  - c. ??? [to elaborate further according to IOTC needs]

### 8.4.4 Result

The IOTC user details changes are saved in the system.

## 8.5 The e-MARIS home page for IOTC users

### 8.5.1 Scenario

The IOTC user accesses the e-MARIS home and the Compliance Dashboard (CD) is displayed. The CD allows the IOTC user to:

- Consult notifications
- Get/send feedback from/to IOTC CPCs

- Consult current CPC reporting and compliance status
- Consult current Compliance indicators
- Manage requirements
- Manage notification schedule
- Build Implementation, Compliance & ad-hoc Report templates
- Generate compliance reports (and other reports)
- Validate CPC submissions and perform quality assessment
- Consult shared documents
- Perform administrative tasks related to the operation of the application

### 8.5.2 Preconditions

The user is signed in to e-MARIS with an IOTC account.

### 8.5.3 Workflow

1. The user accesses the e-MARIS home page, signed in as an IOTC user.
2. The e-MARIS home page displays the Compliance Dashboard, composed of:
  - a. A “Notifications” section
  - b. A “Current CPC Compliance Status” section
  - c. A “Compliance Indicators” section
  - d. A “Shared documents” section
  - e. A “Tools” section including:
    - i. Manage Requirements sets
    - ii. Notification schedule
    - iii. Manage Reports
    - iv. e-MARIS administration

### 8.5.4 Result

N/A

## 8.6 Consult notifications

### 8.6.1 Scenario

The Notifications section of the CD shows a list of the last [n] notifications sent by the system to the IOTC user.

Notifications include:

- Reminders of major upcoming deadlines (IR and NR report submission)
- Feedback from CPC users
- Submissions by CPC users (information and reports)
- System notifications (backups, incidents, etc.)

### 8.6.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) and be on the Compliance Dashboard home page.

### 8.6.3 Workflow

1. The user consults the Notifications section of the CD home page, showing a list of the last [n] notifications sent by the system or CPC users, sorted chronologically by most recent. Each line shows:
  - a. the date the notification was produced
  - b. the title/summary of the notification
  - c. a link to the notification itself
  - d. Each new notification for which the user has not consulted the details is marked as “unread”
2. The user can consult the whole list of historical notifications (beyond the [n] recent ones).
  - a. The user clicks on the “more...” or “all notifications” button
  - b. The system displays the Notification history screen showing a list of all notifications, sorted chronologically by most recent, and paginated so that each page shows only [m] notifications, with previous/next buttons
  - c. Each line shows:
    - i. the date the notification was produced
    - ii. the title/summary of the notification
    - iii. a link to the notification itself
    - iv. Each new notification for which the user has not consulted the details is marked as “read”
  - d. The user can filter notification display by type (upcoming deadline, CPC feedback, system notification...) or by keywords.
3. *Alternative:* The IOTC user has received a notification e-mail and has clicked on the “Read notification” link in the mail, which opens the user’s browser to display the notification (Note: if the user was not signed in e-MARIS, the sign in dialog is displayed).
4. The user can consult the details of each notification by clicking on the relevant link.
  - a. The details of the notification are displayed:
    - i. the date the notification was produced
    - ii. the type of notification: upcoming deadline, IOTC feedback, system notification...
    - iii. who/what produced the notification: system module, CPC user...
    - iv. the title/summary of the notification
    - v. the detailed text of the notification
    - vi. link pointing to the notification in context [i.e. alongside the relevant requirement/submission/question...]
    - vii. a Feedback button allowing the user to reply to the notification or ask a question about it
      1. if the user clicks on the Feedback button, the Feedback screen is displayed with:
        - a. Pre-filled fields for date, user name, notification as topic
        - b. Text field so that the user can enter her comment/question
        - c. “Send feedback” button
      2. The user clicks on the “Send feedback” button
        - a. the system sends the message to the relevant CPC user account (as email + e-MARIS notification)
        - b. the feedback appears as a “read” notification in the user’s Notifications list.
    - viii. If the notification is in reply/follow up to a previous notification (for example a CPC user’s question), then below the notification is a list showing the whole notification/discussion thread, in which each notification details can be consulted.
  - b. The notification for which the user has consulted the details is marked as “read”.



#### 8.6.4 Results

N/A

### 8.7 Interact with CPCs

#### 8.7.1 Scenario

The IOTC user sends a message/question to a CPC user about a particular topic and gets a response.

Note: receiving feedback from the system/CPCs is covered in 8.6 Consult notifications.

#### 8.7.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) and be on a page showing a Notification/Feedback section/button.

#### 8.7.3 Workflow

1. The Feedback section is available on the following page elements:
  - a. Current CPC Status page
  - b. CPC Individual requirement page
  - c. Notification block
  - d. Mass notification page/widget
2. The Feedback section can be “triggered” by:
  - a. An automatic notification sent by the system
  - b. A manual message sent by the IOTC Secretariat
  - c. A manual message sent by a CPC user
3. To send a message to a CPC, the IOTC user can:
  - a. Reply to a notification (automatic, like the CPC having submitted some information or from a CPC user)
    - i. When a notification is received by the IOTC Secretariat, it appears in their Notifications block as well as in their email inbox (see 8.6 Consult notifications), along with a “Reply/Contact” button.
    - ii. The user clicks on the “Reply/Feedback” button which opens the feedback widget, contextualized from the notification
  - b. Start a conversation from a “Feedback/Contact” button
    - i. From any page element that allows it, the IOTC user clicks on the “Feedback/Contact” button which opens the feedback widget, contextualized from the page element (e.g.: if the IOTC user is looking at information submitted by a CPC, then the feedback will be attached to that)
  - c. Mass notification:
    - i. if the IOTC Secretariat needs to send a message/notification to more than one CPC, then the mass notification option allows to select several CPCs or groups of CPCs as recipients for any communication.
4. The feedback widget allows the user to:
  - a. enter a title/subject for their feedback
  - b. select to send the notification immediately or at a given date/time (date/time picker)
  - c. enter the feedback text using a rich text editor
  - d. attach any number of files/documents
  - e. Submit their feedback
5. Automatic notifications are sent by the e-MARIS system in response to various events (see 8.14 Automatic notification sending):

- a. global upcoming deadline for information/report submission by CPCs
  - b. information/report submission by a CPC
  - c. various internal operations (backups, failures...)
  - d. feedback from other external, linked systems (like the IOTC Statistical working system).
6. Once the feedback has been submitted, it appears in the Notification/History of the relevant page element it is related to, as well as in the Notification/History section of the CD home page and in the Notifications section related to the feedback topic (marked as “read”). It is also sent to the recipient’s email address. Note: for traceability purposes, each email sent by the system should also be addressed in Cci to a dedicated IOTC e-MARIS archive email address (e.g. [archives.e-mar@iotc.org](mailto:archives.e-mar@iotc.org)).
7. When the CPC replies to the IOTC user’s feedback, the reply appears as an unread notification in the IOTC user’s Notification/History (see 8.6 Consult notifications).

#### 8.7.4 Results

The IOTC feedback is notified/sent to the relevant CPC(s).

The IOTC feedback is added to the notification/history.

*Note: all notifications are visible in the Notifications/Feedback sections of ALL IOTC users (i.e. they are not sent to a particular user account, but to e-MARIS as a whole): if IOTC\_user\_1 reads a notification and replies to it, then IOTC\_user\_2 (and all other IOTC users) will see that notification as Read when they sign in, along with the reply in the Notification thread.*

## 8.8 Managing Requirements sets

### 8.8.1 Scenario

The IOTC user manages the Requirements sets for a given year: consult the list of existing sets, edit an existing set, delete an existing set, create a new set from scratch or create a new set from an existing one.

A Requirements set is a group of various requirements, possibly organized in sub-sets, and which form a logical/functional group (e.g.: all the requirements that a CPC has to submit as part of their annual Implementation report).

### 8.8.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administration privileges.

### 8.8.3 Workflow

1. The IOTC user goes to the e-MARIS home page and selects the “Manage requirements” tool.
2. The “Manage requirements” page is displayed. It shows:
  - a. A list of all Requirements sets, sorted by year (most recent to oldest) then alphabetical order. Each entry on the list is displayed as follows:
    - i. [Year it applies to] - [Requirements set title] ([date the set was last edited])
    - ii. an indication of the status of the set:
      1. draft/autosaved: the set has been started and saved/autosaved, but is not considered complete. In case editing the set was interrupted, the set is marked as autosaved
      2. scheduled: the set is complete and has been scheduled to become active at a later date
      3. open: the set has been completed and is available for CPC users to submit information

4. closed: the set has been completed but is not available for CPC users to submit information anymore
5. archived: the set has been archived (only closed sets can be archived).  
[note: this status might not be necessary]
- iii. a button to display/edit the relevant set (could be a link on the set title).
- iv. to delete a set, the user has to first select to EDIT it (see 8.12 Editing an existing Requirements set).
- b. A “Create new Requirements set” button to create a new set from scratch or to create a new set from an existing one.

## 8.9 Creating a new Requirements set from scratch

### 8.9.1 Scenario

The IOTC user chooses to create a new Requirements set from scratch.

### 8.9.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administration privileges and be on the “Manage requirements” page.

### 8.9.3 Workflow

1. The IOTC user clicks on the “Create new Requirements set” button.
2. The “New Requirements set” page is displayed.
3. A dialog allows the user to choose whether to create a blank Requirements set or to use an existing set as a template.
4. The IOTC user selects to create a blank requirements set.
5. The first screen is “metadata” about the set:
  - a. Title (must be unique)
  - b. Year (it applies to)
  - c. Repeating requirements set? YES/NO. If YES, it will be proposed as template when creating a new set, and a link between all sets using the same template will be maintained, allowing to follow requirements sets over the years. All requirements in linked requirements sets are defined as linked to the matching requirement in the source set (see 8.10 Adding a requirement).
  - d. Date from which the set will become open (that is, available for CPC users to submit information). Option to Notify CPCs when open? Yes/No.
  - e. Global Deadline to submit all the required information, if any.
  - f. Reminders: add one or more reminders based around the Deadline (in number of days before/after the deadline).
  - g. Date after which the set will become closed (that is, not available for CPC users to submit information anymore). Option to Notify CPCs when closed? Yes/No.
  - h. Can this set generate a report? Some sets have to be completed, then a report generated at a certain point in time (e.g.: Implementation Reports for 2015 had to be produced and sent by 16 March 2016).
  - i. Explanatory text: describe the purpose of the set, add any explanation etc.
  - j. Buttons are available to:
    - i. SAVE: clicking on it manually saves the set as a draft, for later resuming
    - ii. DISCARD CHANGES: clicking on it triggers a confirmation dialog asking the user whether she really wants to DISCARD CHANGES and go back to the “Manage requirements” screen. In that case, all changes made since the last

- manual SAVE* will be discarded. When resuming an autosaved set, if the user clicks the DISCARD button, then all autosaved changes will be discarded.
- iii. NEXT: clicking on it autosaves the set and displays the next screen. Note: autosaves are there only in case the work of the user is interrupted (browser crash, loss of connection...).
  - iv. DELETE: clicking on it triggers a confirmation dialog asking the user if she wants to DELETE the set or CANCEL and return to editing the set. Note: open requirements sets cannot be deleted and must be closed first.
6. The second screen is where the user actually adds new requirements. This screen shows:
- a. A Summary of the Requirements set metadata (see above), non editable.
  - b. A toolbar allowing the user to:
    - i. Add a subset/section: this allows the user to divide a Requirements set into several sections. Clicking this shows:
      - 1. a field to enter the subset title
      - 2. a field to enter the subset description
      - 3. a field to enter the subset reporting deadline, if any, as well as a field to define reminders.
      - 4. a field to enter/select the CMM that the subset is related to, if any. (Note: this could be built with an integration with the CMM database, if possible, to ensure consistency at the level of CMM numbers/titles/text and also allowing to track requirements when a new CMM supersedes an existing one but keeps the same requirement).
      - 5. a button to delete the subset/section: clicking this triggers a confirmation dialog. If the user confirms the deletion, then the subsection and all its content (including requirements) will be deleted.
      - 6. a button to add a requirement: this allows the user to add one or more requirements in the subset/section (see 8.10 Adding a requirement).

*Note: it might be preferable, for implementation and/or user-friendliness reasons, to break down a Requirements set in several web pages, for example having one page per Section.*
    - ii. Add a requirement: this allows the user to add one or more requirements at the root of the set (see 8.10 Adding a requirement).
  - c. Buttons to:
    - i. SAVE: clicking on it saves the set as a draft, for later resuming (Note: as for CPC user requirement submission, Requirements sets are autosaved whenever the IOTC user changes page/screen or adds an element to the set).
    - ii. DISCARD CHANGES: clicking on it triggers a confirmation dialog asking the user whether she really wants to DISCARD CHANGES and go back to the “Manage requirements” screen. In that case, all changes made since the last *manual SAVE* will be discarded. When resuming an autosaved set, if the user clicks the DISCARD button, then all autosaved changes will be discarded.
    - iii. DELETE: clicking on it triggers a confirmation dialog asking the user if she wants to discard all changes and DELETE the set or CANCEL and return to editing the set.
    - iv. NEXT: clicking on it autosaves the set and displays the next screen.
    - v. PREVIOUS: clicking on it autosaves the set and displays the previous screen.
  - d. Reordering subsets/sections: a tool is provided so that the user can reorder the created subsets as needed. The following methods could be offered to move one subset up/down:
    - i. simple drag and drop of a subset, for example by dragging by the title bar, which would do a “live” reordering

- ii. up/down buttons along a subset title bar: clicking on one of the buttons would move the subset up/down once.
7. When the user is done creating the Requirements set, she clicks on NEXT and the third and last screen is displayed: the “Preview” screen. This screen shows:
  - a. A preview of the created Requirements set as it will appear to CPC users, to check that everything is fine.
  - b. Buttons to:
    - i. SAVE: clicking on it saves the set as a draft, for later resuming (Note: as for CPC user requirement submission, Requirements sets are autosaved whenever the IOTC user changes page/screen or adds an element to the set).
    - ii. DISCARD CHANGES: clicking on it triggers a confirmation dialog asking the user whether she really wants to DISCARD CHANGES and go back to the “Manage requirements” screen. In that case, all changes made since the last *manual* SAVE will be discarded. When resuming an autosaved set, if the user clicks the DISCARD button, then all autosaved changes will be discarded.
    - iii. DELETE: clicking on it triggers a confirmation dialog asking the user if she wants to discard all changes and DELETE the set or CANCEL and return to editing the set.
    - iv. PREVIOUS: clicking on it displays the previous screen (add subsets/requirements), so that the user can do any corrections/additions to the previewed set.
    - v. PUBLISH: clicking on it publishes the Requirements set, which will be made active and accessible to the CPCs at the date specified in the set’s metadata (see 5.d above). The user is then returned to the “Manage Requirements” page where the new set will be displayed.

#### 8.9.4 Results

The new requirements set is created and scheduled for activation/closure.

The deadlines defined in the new Requirements set are scheduled in the Notification System.

### 8.10 Adding a requirement

#### 8.10.1 Scenario

The IOTC user, while creating/editing a Requirements set, adds a Requirement to the set.

#### 8.10.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administration privileges and must be creating/editing a requirements set.

#### 8.10.3 Workflow

1. The IOTC user clicks on the “Add requirement” button.
2. The system displays the “Select requirement type” dialog with a list of the various IOTC-defined requirement types:
  - a. Reporting on new CMM implementation.
  - b. Reporting on previous CMM implementation.
  - c. Data and information reporting.
  - d. Existing requirement from another set
  - e. Other [note: this type might not be needed and could be merged with Data and information reporting]

3. The user selects:

- a. “Reporting on previous CMM implementation”: this will compile a list of all “Reporting on new CMM implementation” requirements for which the CPC has NOT reported yet and displays them all, for the CPC user to report on (this is similar to Part B of the IR, except it is not free text but a list of non-reported previous years’ CMMs). This inserts a requirement block, right after the last requirement in the set with the following elements:
  - i. Title
  - ii. Description/help text: free text explaining what the CPC has to do/describe.
  - iii. A deadline date picker (optional).
  - iv. Reminders: add one or more reminders based around the Deadline (in number of days before/after the deadline).
  - v. Whether reporting on this requirement is mandatory or not.
  - vi. A widget allowing to select what the requirement applies to: this would allow the IOTC user to select a number of keywords (maybe organised by topics, e.g. Species, Fisheries, Statistics...) which would reflect what the requirement relates to (e.g.: Yellowfin, Purse seine, FADs). This could be used by the users to filter requirements based on keywords (e.g.: show all upcoming requirements related to Yellowfin+statistics+longline).
  - vii. A toolbar allowing the IOTC user to
    1. Delete the requirement : this triggers a confirmation dialog and deletes the requirement.
    2. Reorder the requirements as needed. The following methods could be offered to move one requirement up/down:
      - a. simple drag and drop of a widget, for example by dragging by the requirement “block”, which would do a “live” reordering
      - b. up/down arrow buttons along a requirement “block”: clicking on one of the arrows would move the requirement up/down once.

Note: in practice, this feature is intended to reproduce Part B of the IR, there should be only ONE requirement of this type in a given subset/section of a Requirements set, so duplicate should not be made available.

- b. “Reporting on new CMM implementation” or “Data and information reporting”. [Note: do “Reporting on new CMM” and “Data and information reporting” requirements have to be structurally different?] This inserts a requirement block, right after the last requirement in the set, with the following elements:
  - i. Title/CMM reference (Note: this could be built with an integration with the CMM database, if possible, to ensure consistency at the level of CMM numbers/titles/paragraph text and also allowing to track requirements when a new CMM supersedes an existing one but keeps the same requirement).
  - ii. Description/help text: free text explaining what the CPC has to do/describe.
  - iii. A deadline date picker (optional).
  - iv. Whether reporting on this requirement is mandatory or not.
  - v. Link to an existing requirement from a previous year:
    1. if the requirement has been created as a copy of an Existing requirement from a previous year, this widget shows the source requirement, along with an UNLINK button allowing to break that link
    2. if the requirement has been created as a “standard” requirement, this widget allows the user to select an existing requirement from a previous year, thus creating a link to it. This could be presented as cascading selects, the first one allowing to select a year (up to the previous year compared to the requirement set’s year), then the second allowing to

select one of the requirement sets for that year, then the third allowing to select the requirements for that requirement set.

- vi. A toolbar allowing the IOTC user to
  1. Delete the requirement : this triggers a confirmation dialog and deletes the requirement.
  2. Duplicate the requirement: this creates a copy of the requirement immediately after the selected requirement
  3. Reorder the requirements as needed. The following methods could be offered to move one requirement up/down:
    - a. simple drag and drop of a widget, for example by dragging by the requirement “block”, which would do a “live” reordering
    - b. up/down arrow buttons along a requirement “block”: clicking on one of the arrows would move the requirement up/down once.
  4. Create a sub-requirement: this allows the IOTC user to divide a requirement into several sub-requirements, each with its own characteristics (e.g.: mandatory or not etc.). Each sub-requirement has exactly the same structure/features as a requirement. Example: Reporting on Resolution 15/04 requires the CPC describing their implementation of a vessel register as well as reporting on implementation of the IMO number requirement, so the 15/05 CMM reporting requirement would include two sub-requirements.
  5. Insert “reporting widgets” in a requirement:
    - a. Not applicable checkbox: if the requirement is not applicable to the CPC, check this box (and fill the accompanying “specify the reason” text field). If this checkbox is selected, then all other fields in the requirement will be deactivated/hidden so that the CPC user cannot enter information.
    - b. Free text entry in a text area, with rich text editing capability: the CPC user can freely answer the question through text.
    - c. Numerical value entry field: useful for entering things like vessel length, catch values etc. Optional features include: adding a unit to the field (e.g.: metric tonnes or LHT), setting validation rules (e.g.: maximum/minimum values)...
    - d. Document submission: a simple File upload widget allowing the user to select a file on her computer and upload it to the e-MARIS system. Optional features include a limitation imposed on the file types (e.g. PDF, DOC, DOCX, XLSX...) and file size (through a client-side file-size check). If the requirements allows for it, the user can click on an “add another file” button that inserts another file upload widget. Note: this could also be done with a file picker/drag-and-drop widget allowing single/multiple files uploads.
    - e. Data file submission: a File upload widget allowing the user to select a file on her computer and upload it to the e-MARIS system. This is slightly different from the Document item as IOTC could restrict the accepted file types to “data formats” (e.g.: XLS, CSV...) to ensure data are submitted in an exploitable format and can be passed to the IOTC SWS. If the requirements allows for it, the user can click on an “add another file” button that inserts another file upload widget. Note: this could also be

- done with a file picker/drag-and-drop widget allowing single/multiple files uploads.
- f. Date selectors: Date widget offering free date entry or a date picker
  - g. Checkboxes groups (e.g.: “Nil report, specify the reason: No large scale longline vessels on IOTC RAV / Do not export frozen BET”), allowing UNIQUE or MULTIPLE selections
  - h. Information tables: an information table can contain a given number of rows each asking the same information about different topics (e.g.: Nb of vessels monitored and Coverage for a list of gear types). Some rows can be fixed at the moment of the creation of the requirement by IOTC Staff (e.g.: purse seine, longline, gillnet) but the widget can allow the user to add as many additional rows as needed (e.g. for gear types not listed in the widget).
  - i. Any other reporting widget that might become required in the future.

Each widget is accompanied by:

- a. a title
- b. a description/help text to explain clearly to the user what she has to do/submit
- c. a mandatory yes/no radio button
- d. preferably a reference to the corresponding CMM paragraph/text
- e. for document/data file upload widgets, a link to the relevant document template.

Each widget is accompanied by the following buttons/features:

- a. Delete: this triggers a confirmation dialog and deletes the widget.
  - b. Duplicate: this creates a copy of the widget immediately after the selected widget
  - c. Reorder: created widgets as needed. The following methods could be offered to move one widget up/down:
    - i. simple drag and drop of a widget, for example by dragging by the widget “block”, which would do a “live” reordering
    - ii. up/down arrow buttons along a widget “block”: clicking on one of the arrows would move the widget up/down once.
- c. “Existing requirements from another set”: this allows the tRFMO user to add to a Requirements set a requirement that is also part of another set, to avoid duplication of reporting and information (for example, the Annual report could ask CPCs whether they have reported a given statistics, when that reporting requirement is also part of the Scientific report). Submitting information for one requirement would mark it as fulfilled in all sets where it is used. This “duplicated” requirement is in fact a simple pointer to a single entity, and editing it applies the changes to each occurrences where it appears.
- i. The system displays a dialog allowing the user to select an existing Requirements set
  - ii. The system then displays a list of all the requirements in the set
  - iii. The user selects a requirement then clicks the “Select requirement” button
  - iv. The selected requirement is inserted.



- i.
- d. Existing requirement from a previous year: this allows the IOTC user to add to a Requirements set a requirement that had already been created a previous year, thus duplicating the requirement definition (text, widgets, sub-requirements...) and creating a link to the previous year's requirement, thus allowing the creation of a time series on that requirement for reporting, compliance, etc. This "linked" requirement effectively creates a copy of the previous year's requirement and edits made to the "linked" requirement are NOT reflected in the previous year's source requirement.

## 8.11 Creating a Requirements set from an existing set

### 8.11.1 Scenario

The IOTC user chooses to create a new Requirements set from an existing set, then modify it as needed.

### 8.11.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administration privileges and be on the "Manage requirements" page or be editing an existing set.

### 8.11.3 Workflow

1. The IOTC user has two ways to create a new Requirements set from an existing set:
  - a. Select "Create a new Requirements set" from the "Manage requirements" page, then pick the "Use an existing set as a template" and select the desired existing set from a list.
  - b. When editing a Requirements set (see 8.12 Editing an existing Requirements set), click on the "Duplicate this set" button.
2. If the Requirements set selected as a template is a "repeating" set (see 8.9 Creating a new Requirements set from scratch), then the new set is "linked" to the existing set, as a new iteration. All requirements in the new requirements set are defined as linked to the matching requirement in the source set (see 8.10 Adding a requirement).
3. The two options lead to the same process: the selected Requirements set is duplicated and opened in "Editing" mode, where the user can modify it as needed, with the following particularities:
  - a. The Requirements set title MUST be changed (it must be unique)
  - b. If the set that was used as a template was a "repeating" set, the user has the possibility to UNLINK the new set from the sequence of repeating sets, so that it can be a standalone set or start its own repeating sequence.
  - c. All metadata fields, requirement subsets, requirements etc. are already pre-filled
4. From there, the user just follows the steps described in 8.12 Editing an existing Requirements set.
5. Once done the user is then returned to the "Manage Requirements" page where the new set will be displayed.

### 8.11.4 Results

The new requirements set is created from an existing one and scheduled for activation/closure.

The deadlines defined in the new Requirements set are scheduled in the Notification System.

## 8.12 Editing an existing Requirements set

### 8.12.1 Scenario

The IOTC user selects an existing, non-archived Requirements set, to edit it, then do any changes as required.

### 8.12.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administration privileges and be on the “Manage requirements” page.

Issue: What happens if the Requirements Set is Open and CPCs have already started reporting some required information? Should the system:

- only allow editing of Sets for which no data has been submitted?
- allow editing of Sets with data, but then discard all data already submitted for requirements that have been edited, if necessary (it might be that edits made are compatible with already submitted data, e.g. changing a deadline, adding a new requirement, changing the description of a requirement etc.)?

### 8.12.3 Workflow

1. The IOTC user selects the Requirements set she wants to edit and click on the “Edit” button (e.g.: the set’s title).
2. The system displays the first screen of the Requirements set, with all metadata fields pre-filled and in editing mode (see 8.9 Creating a new Requirements set from scratch). The following particularities apply:
  - a. If the set was created by duplicating a “repeating” set, the user has the possibility to UNLINK the new set from the sequence of repeating sets, so that it can be a standalone set or start its own repeating sequence.
  - b. DELETE button: A set that has already been published cannot be deleted if any CPC has already submitted information/data for that set, it can only be closed (see below).
  - c. CLOSE button: the IOTC user has the possibility to close immediately an open set, which will then prevent CPCs from submitting new information. clicking this button triggers a confirmation dialog.
3. From there, the user can follow the steps described in 8.9 Creating a new Requirements set from scratch.

### 8.12.4 results

The changes made to the requirements set are saved (including any changes to the scheduled activation/closure).

The changes made to the deadlines defined in the Requirements set are updated in the Notification System schedule.

## 8.13 Manage notification/deadline schedule

### 8.13.1 Scenario

The IOTC user wants to consult and manage the notification/deadline schedule.

### 8.13.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administrative privileges.

### 8.13.3 Workflow

1. The IOTC user goes to the “e-MARIS administration” page and chooses the “Manage notification schedule” action.

2. The “Notification/deadline schedule” page is displayed, showing:
  - a. a list of all upcoming scheduled notifications/deadlines, sorted by closest to furthest in time. This could be a basic paginated list (deadline / title of requirement or notification / recipients) or presented as a calendar with visual; indication of scheduled notifications.
  - b. a filter widget allowing to filter (upcoming or past) notifications on:
    - i. type: requirement deadline, report deadline, global notification...
    - ii. period: date pickers allow to select a time period to show scheduled notifications for.
    - iii. requirements set: allows to select a requirements set for which to display scheduled notifications.
  - c. a button to switch to a list of past scheduled notifications/deadlines, sorted by closest to furthest in time
  - d. A button to create a global notification: global notifications are not related to a particular requirements set/requirement, but can be created to remind CPCs about a particular date (meeting etc.) [note: this might not be required as part of e-MARIS] Clicking that button opens a “Global notification” screen allowing the user to:
    - i. select a date for the notification (date picker)
    - ii. enter a title for the notification (text field)
    - iii. select the recipients for the global notification (All CPCs, All Members, All CNCP, custom selection of CPCs...)
    - iv. enter a description for the notification (rich text editing field)
    - v. attach one or several files, each with a description/title
    - vi. SAVE or DISCARD the global notification
  - e. A button to consult each scheduled notification/deadline: clicking on it will open the relevant:
    - i. Requirements set/requirement:
      1. in edit mode if the notification is in the future, so that the IOTC user can consult details relevant to the deadline and, if needed, edit it (see 8.12 Editing an existing Requirements set).
      2. in read-only mode if the notification is in the past.
    - ii. global notification,
      1. in edit mode if the notification is in the future, so that the IOTC user can consult details relevant to the notification and, if needed, edit it:
        - a. the same screen as for creating a Global notification (see above) is displayed, with:
          - i. all fields pre-filled
          - b. a DELETE button to delete the global notification
        2. in read-only mode if the global notification is in the past.

## 8.14 Automatic notification sending - General discussion

The system can send automatic notifications based on two events:

- action by an IOTC user triggering an immediate notification (e.g.: publishing of a new Requirements set or validation of a CPC submission), as defined by the IOTC user or by the system (e.g.: validation of a CPC submission always notifies the CPC immediately).
- deadline/scheduled date attached to a requirements set, a requirement, a global notification etc.

The system maintains a schedule of notifications based on:

- Deadlines/reminders set for each requirements set and requirement: whenever a deadline or reminder date is reached, the system sends a notification to all applicable CPCs.

- The reporting/implementation status of each CPC: if a CPC has already submitted relevant required information, then it is not included in the deadline/reminder notification.

[Note: for deadlines, it might still be interesting to notify CPCs which have already submitted all required information, though with a notification text indicating that they have done so.]

Sending notifications is made by email and within the system, see 7.8 Consult notifications, 8.6 Consult notifications and 8.7 Interact with CPCs).

Note: for traceability purposes, each email sent by the system should also be addressed in Cci to a dedicated IOTC e-MARIS archive email address (e.g. [archives.e-maris@iotc.org](mailto:archives.e-maris@iotc.org)).

## 8.15 Consult reporting and compliance status for each CPC

### 8.15.1 Scenario

The IOTC user consults the reporting and compliance status of all the CPCs as a group, then drills down to consult the individual overall status of each CPC and finally consults the detailed status of a single CPC.

### 8.15.2 Preconditions

The IOTC user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account), and be on the CD (home page).

### 8.15.3 Workflow











1. The CD home page shows a section called “Reporting and Compliance status” which displays:
  - a. By default, all blocks are related to ALL CURRENT REQUIREMENTS SETS, but a selector allows to display them for a single current requirements sets (the same is available for historical years when the user clicks on the “previous years” button): if the user changes the selection of what to display, then the whole Reporting and Compliance status section is refreshed to display the various data related to the selected set(s).
  - b. A first block related to the overall Reporting status of all CPCs as a group for the selected requirements sets, showing:
    - i. The title “Current Overall Reporting status”
    - ii. Reporting status “scores” (i.e. % of reported information/total number of reporting requirements) are broken down in 5 ranges: 0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green)
    - iii. The number/percentage of CPCs which “score” is within a given reporting range is displayed under each range:

Reporting score	0-25%	26-50%	51-75%	76-99%	100%
Number (%) of CPCs	4 (13%)	2 (6%)	21 (65%)	4 (13%)	1 (3%)


- c. A second block related to the overall Compliance status of all CPCs as a group for all requirements sets, showing:
  - i. The title “Current Overall Compliance status”
  - ii. Compliance status “scores” (i.e. % of compliant requirements/total number of requirements) are broken down in 5 ranges: 0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green)
  - iii. The number/percentage of CPCs which reporting level is within a given reporting range is displayed under each range:


Compliance score	0-25%	26-50%	51-75%	76-99%	100%









Number (%) of CPCs	4 (13%)	2 (6%)	21 (65%)	4 (13%)	1 (3%)
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- iv. Both status tables/sections are updated continuously as CPCs report information and IOTC validates them.
- d. A list of all individual CPCs, sorted alphabetically, with the following columns/details:
  - i. Name of CPC (with a “See more details...” link –possibly the CPC name– to consult that CPC reporting and compliance status in details, see below).
  - ii. Reporting score: A “progress bar” and a numerical percentage, reflecting the ratio of requirements that have been met vs those that haven’t been. The progress bar could be color-coded to reflect the implementation status, for example one colour per each range of 25% (0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green). For example, if there is a total of 57 reporting requirements in 2017 and the CPC has reported on 40 of them, the Reporting score indicator would look like this:  **70%** . (Note: this is the same indicator as detailed in 7.16 Consult Reporting Status). If the CPC or the IOTC Secretariat has submitted the Implementation Report for that Requirements set, an icon indicates it and links to the report.
  - iii. Compliance score: A “progress bar” and a numerical percentage, reflecting the ratio of requirements for which the CPC is compliant met vs the total number of requirements. The progress bar could be color-coded to reflect the compliance status, for example one colour per each range of 25% (0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green). For example, if there is a total of 57 reporting requirements in 2017 and the CPC is compliant on 40 of them, the Compliance score indicator would look like this:  **70%** . If the IOTC Secretariat has submitted the Compliance report for that Requirements set, an icon indicates it and links to the report.
  - iv. Status icon: (Note: this is the same indicator as detailed in 7.16 Consult Reporting Status):
    - 1.  a yellow clock icon if any of the requirements haven’t been reported yet and a deadline is near.
    - 2.  a red clock icon if any of the requirements haven’t been reported yet and a deadline is passed.
    - 3.  a green checkmark if all the requirements have been satisfactorily reported.
    - 4.  a red checkmark if all the requirements have been satisfactorily reported but after the deadline.
    - 5.  a red warning sign if a requirement has been reported upon but the IOTC Secretariat staff has flagged the information submitted as not satisfactory (this would also send a notification to the CPC)
    - 6.  a blue “pencil” icon to indicate that there is one or more requirements which have been started by the CPC and saved for later resuming.
    - 7.  : there is unread feedback from that CPC related to that Requirements set.
    - 8.  : there is new information reported by that CPC related to that Requirements set.
  - v. buttons allowing to sort (ascending or descending) on each of the columns:
    - 1. CPC name
    - 2. reporting score
    - 3. compliance score
    - 4. status

- vi. A “Previous years...” button allows the user to consult the Reporting and Compliance summary of all the individual CPCs in previous years. This could show one table for each year (with a year selector), or allow to compare the current scores with the scores *at the same date* or *at the end of the reporting period* for any year.
  - vii. A “Generate Compliance reports” button (see 8.18 Publish analytical reports). Clicking on this button asks the IOTC user to choose between the following options:
    - 1. Generate CRs for all CPCs for which a CR hasn’t been already generated
    - 2. Generate CRs for all CPCs for which a CR hasn’t been already generated and update CRs of CPCs which have submitted new information since their CR has been generated
    - 3. Generate CRs for all CPCs, including those that already have a CR
2. When the IOTC user clicks on the “See more details...” button (or CPC name) for a given CPC, the “Current Reporting and Compliance status” page for the relevant CPC is loaded, showing:
- a. A notification block for the CPC.
  - b. the Reporting and Compliance status of the CPC as a whole (see above):
    - i. Reporting score
    - ii. Compliance score
    - iii. Status icon
  - c. A Compliance Report block:
    - i. If the CR for that CPC has already been generated:
      - 1. the title of the CR, along with the date of creation/submission,
      - 2. a button/link to display/edit the CR (see 8.18 Publish analytical reports)
    - ii. If the CR for that CPC has not been generated, a button to do so (see 8.18 Publish analytical reports).
  - d. Each current Requirements set is displayed as a section showing:
    - i. the Requirements set title (with possibly a link to consult/edit the set)
    - ii. the global reporting deadline for the set
    - iii. the reporting/compliance score/status for the whole set (see above)
    - iv. The notification status for this set (see above)
    - v. A “See more details...” button allows to display the “Current Reporting and Compliance status” page (see below).
    - vi. A “Previous years...” button allows the user to consult the Reporting and Compliance summary for that Requirements set in previous years. This could show one block for each year, or allow to compare the current scores with the scores *at the same date* or *at the end of the reporting period* for any year.
  - e. The “Current Reporting and Compliance status” page also shows an “Annual reports” section which shows, for each report (Implementation/National):
    - i. if the CPC has not yet submitted their annual report:
      - 1. a visual indication that the report has not been submitted
      - 2. a button to do so (see 7.18 Generate/submit Annual Report). This could allow the IOTC user to submit the report for a CPC, if the CPC cannot do it.
    - ii. if the CPC has already submitted their annual report:
      - 1. the title of the report (e.g.: “Malaysia 2016 Implementation report”)
      - 2. a link to view the submitted report
        - a. this links to a read-only web display of the report, complete with links to the various uploaded documents/files

- b. the “view report” page offers buttons to download the report (see below) as well as consult the previous versions (if the report has been updated), if any.
    3. a link to download the submitted report: this opens a dialog asking whether the user wants to download:
      - a. a simple PDF copy of the report or
      - b. a ZIP archive containing the PDF copy of the report along with all the uploaded documents/files.
    4. the date of submission/update
    5. a button to update/generate a new report: if the user has updated the information/data required for the current year after having submitted their annual report (maybe in reply to feedback from IOTC), the IOTC user can update the report to submit it again
  - iii. A feedback widget allowing discussion between the CPC user and the IOTC Secretariat about the report.
3. When the IOTC user clicks on the “See more details...” button for a given Requirements set, the “Current Reporting and Compliance status” page for the relevant Requirements set is loaded. Note: This screen follows the same structure as the “Report Current requirements” that each CPC can access from their Implementation Dashboard, as described in 7.9 Consult Current submission requirements (see also 7.16 Consult Reporting Status). If structural/data changes are made to these screens, they will have to be reflected here too.
  - a. The “Current requirements” page for each Requirements set shows a list of ALL requirements for the current year, organised by Major Sections (as in current Implementation Reports and National reports). Note: major Sections can be subdivided in sub-sections (e.g.: in the National Report, the “Information on fisheries, research and statistics” section is subdivided in 9 subsections). The “Current requirements” page for a given set shows:
    - ii. the name of the CPC
    - iii. the Requirements set title
    - iv. the global reporting deadline for the set
    - v. the reporting/compliance score/status for the whole set (see above/below)
    - vi. The notification status for this set (see below)
  - b. Each section shows:
    - i. A Section title (e.g: “*Section A: new CMMs*”)
    - ii. A Section description (e.g.: “*Describe the actions taken, under national legislation, in the previous year to implement conservation and management measures adopted by the Commission at its [PREVIOUS YEAR] Session*”)
    - iii. the reporting/compliance score/status for the whole section:
      1. Reporting score: A “progress bar” and a numerical percentage, reflecting the ratio of requirements that have been met vs those that haven’t been. The progress bar could be color-coded to reflect the implementation status, for example one colour per each range of 25% (0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green). For example, if there is a total of 57 reporting requirements in 2017 and the CPC has reported on 40 of them, the Reporting score indicator would look like this:  **70%**. (Note: this is the same indicator as detailed in 7.16 Consult Reporting Status)
      2. Compliance score: A “progress bar” and a numerical percentage, reflecting the ratio of requirements for which the CPC is compliant met vs the total number of requirements. The progress bar could be color-coded to reflect the compliance status, for example one colour per each

range of 25% (0-25%: red, 26-50%: orange, 51-75%: yellow, 76-99%: blue, 100%: green). For example, if there is a total of 57 reporting requirements in 2017 and the CPC is compliant on 40 of them, the Compliance score indicator would look like this:  70% .

- a. Status icon: (Note: this is the same indicator as detailed in 7.16 Consult Reporting Status):
  - i.  a yellow clock icon if any of the requirements haven't been reported yet and a deadline is near.
  - ii.  a red clock icon if any of the requirements haven't been reported yet and a deadline is passed.
  - iii.  a green checkmark if all the requirements have been satisfactorily reported.
  - iv.  a red checkmark if all the requirements have been satisfactorily reported but after the deadline.
  - v.  a red warning sign if a requirement has been reported upon but the IOTC Secretariat staff has flagged the information submitted as not satisfactory (this would also send a notification to the CPC)
  - vi.  a blue "pencil" icon to indicate that there is one or more requirements which have been started by the CPC and saved for later resuming.
  - vii.  : there is unread feedback from that CPC related to that Requirements set.
  - viii.  : there is new information reported by that CPC related to that Requirements set.
- iv. The notification status for this section:
  1. A button allowing the IOTC user to contact the CPC about this section
  2. whether the IOTC user has submitted any question about it to the CPC.
  3. whether the IOTC Secretariat has received any new/unread notification from the CPC about this section.
  4. A button allowing to display the notification thread about this section
- v. A button to display the Section page with all its requirements and submit required information (see below).
- c. On each Section page is a list of all requirements under this section for the given year. Requirements are:
  - i. Sorted by the order that was decided by IOTC staff when editing the requirements
  - ii. Sortable by deadline (closest to furthest), so that the user can see which are the most urgent requirements.
- d. Each requirement in the list shows:
  - i. The title of the requirement
  - ii. The deadline for the requirement
  - iii. The status of the requirement, showing whether the requirement has been fulfilled/submitted or not and whether its deadline for submission has been exceeded (see above)
  - iv. The notification status for this requirement (see above)
  - v. If the required information:
    - a. Has not been submitted: a button to submit the relevant information/data. This could allow the IOTC user to enter information submitted by a CPC outside of the system (email, fax...).



- b. Has been submitted: the information entered by the CPC (submitted files are represented as links allowing to download them). [An Edit button could allow the IOTC user to edit the submitted data, with full traceability]
4. [Optional/maybe not useful: A search/filter widget could allow IOTC users to search/filter for current requirements by topics/keywords (e.g.: show all upcoming requirements related to Yellowfin+statistics+longline). Using this would return a list of all current requirements which have been tagged with the relevant keywords, and the Implementation/Compliance summaries/statuses as in 2 and 3 above, but only for the requirements matching the selected topics.]
5. Each of the elements on this page/screen shows a “validation” widget:
  - a. If the reported information has not been assessed/validated, a button allowing the IOTC Secretariat to assess/validate it (see 8.17 Validate CPC submissions and perform quality assessment).
  - b. If the reported information has been assessed/validated (by an IOTC user, by an automated e-MARIS procedure or by an external system like the IOTC SWS), the assessment/validation status along with an “Update” button allowing the user to update the validation status (see 8.17 Validate CPC submissions and perform quality assessment).

## 8.16 Publish CPC reports

### 8.16.1 Scenario

The IOTC user receives an annual report submitted by a CPC, reviews it and, after possible back-and-forth feedback with the CPC, marks the report as published.

### 8.16.2 Preconditions

The user must be signed-in with an IOTC account (see 6.1 Sign in to an IOTC account) with relevant privileges.

### 8.16.3 Workflow

1. The IOTC user is notified of the submission of the report and clicks on the link to consult it.
2. The IOTC user performs assessments, validation, has back-and-forth feedback with the relevant CPC, which can submit an updated version of the report (see 8.17 Validate CPC submissions and perform quality assessment).
3. Once the report is deemed ready, the IOTC user marks it as PUBLISHED as DRAFT (if the report has been defined as allowing DRAFT publication) or FINAL, depending on its status.
4. The report can then be pushed to:
  - a. the sharing system (see 8.22 Automatic document sharing)
  - b. the IOTC website (see 8.20 Publish documents to the IOTC website’s document repository).

## 8.17 Validate CPC submissions and perform quality assessment

### 8.17.1 Scenario

The IOTC is notified that some information has been submitted by a CPC. The IOTC user consults the submission, which can have assessment information attached to it by internal automatic validation procedures, then decides the compliance status of this information.

### 8.17.2 Preconditions

The user must be signed-in with an IOTC account (see 6.1 Sign in to an IOTC account) with relevant privileges.

### 8.17.3 Workflow

1. The IOTC user is notified of the submission of information and clicks on the link to consult it. This can be:
  - a. individual requirement submission
  - b. CPC annual report submission
2. Along each requirement (individual or as part of an annual report), there are two status indicators/widgets (see 8.15 Consult reporting and compliance status for each CPC):
  - a. Reporting status: whether the information has been submitted and, if so, whether it is satisfactory. Clicking on this widget allows the IOTC user to select/change the status between satisfactory/non satisfactory. The submission status is reflected both in the CPC's ID and in the IOTC user's CD. If a submission is marked as non satisfactory, then the CPC will also be notified. [Note: Setting the reporting status to "Non satisfactory" should automatically set the Compliance status to NC or PC?]
  - b. Compliance status: it indicates:
    - i. the level of compliance as currently assessed, and whether this is a preliminary or final assessment. This status can take the following values: C, PC, NC, N/A. Status can be automatically pre-assessed by internal, automated procedures. Example: if a CPC declares that a requirement does not apply to it, then preliminary Reporting status would be Reported and preliminary Compliance status would be N/A. Example: if a CPC hasn't submitted a required data file, then the status would be assessed as NC. Preliminary assessment can also come from external systems, like SWS, which could return compliance evaluation based on analysis of the submitted data files (see 10.2 Sending validation and QA information from SWS to e-MARIS - General considerations): for this purpose, it is important that the internal automatic validation system be modular, plug-in based, so that new validation procedures can be added as needed. Clicking on this widget would allow the IOTC user to manually confirm/set the Compliance status, along with a comment/observation field.
    - ii. the level of timeliness of the information submission, which would be automatically evaluated using the date of submission of the relevant information (note: this would have to be cross-checked with the satisfactory/non satisfactory evaluation by the Secretariat: information is not deemed submitted until it has been done satisfactorily).
  - c. For each status, a date of last update should be available.
3. Each status indicator should allow the IOTC user to consult a full history of their values (e.g.: at a given date, non satisfactory submission by CPC, then 10 days later new submission, marked as satisfactory by the IOTC user).

## 8.18 Publish analytical reports - General discussion

Analytical/synthetic reports are reports that are not directly compiled from existing information submitted by CPCs, but rather a combination of such information, coming from different requirements sets, with input from the IOTC Secretariat.

The perfect example are the Compliance reports which aggregate all information submitted by a given CPC and, using a topical presentation, indicates for each requirement the level of compliance and

timeliness (compliant, partly compliant, non compliant or N/A). For each requirement, the IOTC Secretariat can add observations.

CRs are published first as draft, so that the relevant CPC can submit remarks on each evaluation by the IOTC Secretariat. Once feedback has been received and/or the deadline has been reached, the final CR is then published on the IOTC website.

To reproduce the current workflow, the following steps would have to be put in place:

1. Building the template for the report (see 8.19 Building Implementation, Compliance & ad-hoc Report templates - General discussion).
2. Pre-populating the report from information submitted by CPCs (e.g. the system can determine whether a CPC has submitted a given information and if so, whether it was done in time).
3. Pre-populating the report from assessment/evaluation information by the IOTC Secretariat (see 8.17 Validate CPC submissions and perform quality assessment)
4. Allow the IOTC user to add observations.
5. Allow the IOTC user to notify the relevant CPC of the availability of the draft/preliminary report.
6. Allow the CPC to send some feedback to IOTC and to enter remarks in the draft report.
7. Allow the IOTC Secretariat to publish the FINAL report to:
  - a. the sharing system (see 8.22 Automatic document sharing)
  - b. the IOTC website (see 8.20 Publish documents to the IOTC website's document repository).

## **8.19 Building Implementation, Compliance & ad-hoc Report templates - General discussion**

There are two major categories of reporting templates.

### **8.19.1 Templates used to produce reports on CPC submissions**

These are templates for reports like the current Implementation Reports or National Reports, which are basically a structured way to display in one document all the information submitted by a given CPC regarding a given Requirements set. The idea here is to reproduce as closely as possible the existing report templates to facilitate adoption of the system by CPCs. Note that, with e-MARIS, CPCs would not have anymore to manually compile the IRs, they would be automatically compiled and all the CPC would have to do is review them, add some comments then submit them through the system (see 7.18 Generate/submit Annual Reports).

For reports that have to be published in English and French, two templates would have to be created. The best solution would be to have a master template in English and a translated template in French.

For this category of reports, the template would mostly consist of the following elements:

1. A Header block, with IOTC logo, the report/document reference, the report title, explanatory text, CPC name, date of submission, language...

IOTC-2016-CoC13-IR01[E]



**IOTC Agreement – Article X**

**Report of Implementation for the year 2015**

**DEADLINE FOR SUBMISSION OF THE REPORT 16 MARCH 2016**

Reporting CPC: Australia

Date of submission: 16/03/2016

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*Please NOTE: this document is composed of 3 sections to report on the implementation of IOTC Resolutions*

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**Figure 6. Sample layout for an Implementation Report header block**

2. A block for each major section of the Requirements set, with section title, help text etc. (the system would automatically add as many such blocks as there are major sections in the Requirements set)

**Part A.** *Describe the actions taken, under national legislation, in the previous year to implement conservation and management measures adopted by the Commission at its Nineteenth Session.*

**Figure 7. Sample layout for an Implementation Report major section block**

3. Within each section, a block for each sub-section or requirement, reproducing all information submitted by the CPC (the system would automatically add as many such blocks as there are sub-sections/requirements in the Requirements set.

- Resolution 10/10 Concerning market related measures

For CPCs that import tuna and tuna-like fish products, or in whose ports those products are landed or transhipped, should report a range of information (e.g. information on vessels / owners, product data (species, weight), point of export) annually. *[A template report exists].*

**Nil report, specify the reason(s):**  No landing from foreign vessels in national ports  
 No transhipment by foreign vessels in national ports  
 Do not import tuna and tuna-like fish products

**The report on import, landing or transhipment of tuna and tuna-like fish products landed or transhipped in port in 2015 have already been provided to the IOTC Secretariat:**

Yes       Date of reporting (DD/MM/YYYY): 12/02/2016  
No

Additional information:

Australia has previously reported on Resolution 10/10 concerning market related measures. Landings of fisheries products into Australia by foreign flagged vessels are prohibited, except where ministerial approval has been granted. No such approvals were granted in 2015. There were no transhipments by Australian flagged fishing vessels in the IOTC Area of Competence in 2015.

**Figure 8. Sample layout for an Implementation Report requirement block**


Note: for each type of “information widget” used by CPCs to submit information (see 7.14.3 Submit requested information, documents and data for a requirement), a formatting template will have to be defined in the system, so that the report template can automatically build a layout.

For requirements related to submitting a file,


- a. the web-based version of the report accessible through e-MARIS will indicate:
    - i. that the file has not been provided to the Secretariat, or
    - ii. that the file has been provided to the Secretariat on [date of submission] along with a link to download a copy of the file
  - b. the PDF version of the report that will be published on e-MARIS and on the IOTC documents repository will indicate:
    - i. that the file has not been provided to the Secretariat if the CPC has not submitted the required file
    - ii. that the file has been provided to the Secretariat on [date of submission] (no link to download)
4. An option, if selected, allows the report to be published first as a Draft, before being marked as Final by an IOTC user.
  5. An option for the report to be automatically published in the IOTC website’s document repository once published in e-MARIS (see 8.20 Publish documents to the IOTC website’s document repository).
  6. A Sharing section allows the IOTC user to define whether the report should be automatically shared with CPCs on submission or validation (see 8.22 Automatic document sharing). If the document is to be automatically shared, then the IOTC user can select with whom the document should be shared (All CPCs or selected CPCs). [Note: it could be better to just have a “Share with all CPCs” option...]. In the case of a report that can be published as a Draft version before a Final version, there should be an option to select whether to share both the Draft then the Final or just the Final version.

### 8.19.2 Templates used to produce analytical/synthetic reports

These are templates for reports like the current Compliance Reports, which are reports constructed by IOTC for a specific goal, usually analytical. For example, the CRs compile all annual requirements from all Requirements sets (currently information required as part of the IRs and NRs), look at the compliance status of a given CPC for each of the requirements, both in terms of timeliness and content (with comparison to the previous year) and present a table summarizing the CPC’s compliance status for each single requirement, organized by major topics.



Indian Ocean Tuna Commission  
Commission des Thons de l'océan Indien  
iotc ctot



**IOTC-2016-CoC13-CR01 [E]**  
**IOTC Compliance Report for: Australia**  
**Report produced on: 16/04/2016**

N°	Source	Information required	Deadline/ Remark	Previous Status <sup>1</sup>		Current Status		Observations	CPC Remarks
				Timeliness	Content	Timeliness	Content		
<b>1. Implementation obligations</b>									
1.1.	Art. X Agreement	Report of Implementation	Session - 60 ds (16.03.2016)	C	C	C	C	Received 16.03.16.	
1.2.	Rules Of P.	Compliance Questionnaire	29.02.2016	C	C	C	C	Received 29.01.16.	
1.3.	SC	National Scientific Report	09.11.2015	C	C	C	C	Received 27.10.15.	
1.4.	Commission	Feedback letter	16.03.2016	C	C	C	C	Received 01.03.16.	
<b>2. Management Standards</b>									
2.1.	Res. 15/04	Documents listed in this resolution on board <sup>2</sup>	16.03.2016	C	C	C	C	Legal Reference: Australian Fisheries Management Act 1991/Fisheries Management Regulations.	
		Marking of vessels <sup>2</sup>		C	C	C	C		
		Marking of gears <sup>2</sup>		C	C	C	C		
		Marking of FADs <sup>2</sup>		C	C	C	C		
		Logbook on board <sup>4</sup>		C	C	C	C		

Figure 9. Sample layout for a Compliance Report

The template/reporting engine selected/developed for e-MARIS will have to be flexible enough to allow the IOTC admin users to build this sort of reports.

An option, if selected, allows the report to be published first as a Draft, before being marked as Final by an IOTC user.

A Sharing section allows the IOTC user to define whether the report should be automatically shared with CPCs on submission or validation (see 8.22 Automatic document sharing). If the document is to be automatically shared, then the IOTC user can select with whom the document should be shared (All CPCs or selected CPCs). [Note: it could be better to just have a “Share with all CPCs” option...]. In the case of a

report that can be published as a Draft version before a Final version, there should be an option to select whether to share both the Draft then the Final or just the Final version.

## 8.20 Publish documents to the IOTC website's document repository - General discussion

A number of types of reports have to be published on the IOTC website before certain deadlines (e.g.: CRs have to be made available on the IOTC website 30 days before the annual session of the Compliance Committee).

A mechanism could be developed to allow e-MARIS to push relevant reports/documents to the IOTC website's document repository.

This would involve:

- sending the PDF file to the correct directory on the iotc.org web server
- inserting the relevant metadata in the website's document database:
  - language (e.g.: English or French)
  - reference (e.g.: IOTC-2016-CoC13-CR12)
  - document type, meeting type, meeting year, meeting session (e.g.: meeting document, CoC, 2016, 13)
  - file reference (e.g.: IOTC-2016-CoC13-CR12.pdf)
  - availability date
  - Author

Reports could be pushed to the IOTC website in two ways:

- manually by IOTC users, after a document is published in e-MARIS
- automatically by the system:
  - when a document is published in e-MARIS
  - at a given deadline, which would have to be defined in the report template [Note: this would mean hard-coding the deadline in each year's template, as deadlines are a number of days before the annual meetings, which date vary each year].

Implementation details depend highly on the features and implementation of the IOTC website's document repository. This would have to be evaluated once the migration of the existing IOTC website to the FAO infrastructure has been completed.

A mechanism for checking that the report has been successfully published on the IOTC website should also be developed.

## 8.21 Consult Compliance Indicators

### 8.21.1 Scenario

The IOTC user consults compliance indicators offered by the All CPCs Compliance Scoreboard, allowing her to get an overall picture of the compliance level of all CPCs.

### 8.21.2 Preconditions

The IOTC user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account).

### 8.21.3 Workflow

1. The CD home page shows a section called "Compliance indicators" which displays:

- a. a selection of indicators related to the current compliance level of all CPCs
  - b. a “see more...” button allowing to display a more comprehensive set of “Compliance indicators”
2. The user clicks on the “see more...” button and the All CPCs Compliance indicators/Compliance scoreboard is displayed for the current year, showing:
- a. a comprehensive set of Compliance indicators:
    - i. tables/numerical indicators
    - ii. charts
  - b. a “History” widget allowing to consult the compliance history of all CPCs
    - i. display the Compliance indicators for any given year
    - ii. compare two given years: side by side display of Compliance indicators for both years
    - iii. compare all years: trend charts/tables for all compliance indicators across all years
  - c. a “download” button allows the user to download a PDF copy of the Compliance scoreboard or history display, if available.
3. Compliance indicators showing individual CPCs should give direct access to the Compliance dashboard for each CPC (e.g. link from the CPC name) (see 8.15 Consult reporting and compliance status for each CPC).

#### 8.21.4 Results

N/A

### 8.22 Automatic document sharing

#### 8.22.1 Scenario

Some documents/reports can be shared with individual CPCs or with all CPCs, so that they can consult the documents and possibly comment on them.

Some documents are shared automatically by the system when they are published (this includes submission reports (e.g. Implementation Reports) and assessment reports (e.g. Compliance reports)), while other documents can be shared when needed by an IOTC user [is that needed/useful?].

#### 8.22.2 Preconditions

A given document/report must be defined as shared automatically on publication.

#### 8.22.3 Workflow

1. A document/report (defined as shared automatically on publication) is published by a CPC, an IOTC user or the system itself.
2. The users of the recipient CPCs defined in the report’s share list will receive a notification about the sharing, including a direct link to their Shared documents page. A similar notification will appear in IOTC users’ Shared documents page (with some variations, e.g. “A document has been shared with you” in the CPC’s shared documents list would read “A document has been shared” in an IOTC user’s shared documents list).
3. The relevant document appears in the recipient’s CPCs and IOTC users Shared document list.

#### 8.22.4 Results

The relevant document appears in the recipient’s CPCs and IOTC users Shared document list and can be consulted and commented on by CPCs and/or IOTC users.

## 8.23 Manual document sharing

### 8.23.1 Scenario

Some documents/reports can be shared with individual CPCs or with all CPCs, so that they can consult the documents and possibly comment on them.

Some documents are shared automatically by the system when they are published (this includes submission reports (e.g. Implementation Reports) and assessment reports (e.g. Compliance reports)), while other documents can be shared when needed by an IOTC user [is that needed/useful?].

### 8.23.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) on a report/document page.

### 8.23.3 Workflow

1. The IOTC user selects to share the document/report and clicks on “Share this document” button.
2. A “Share document” dialog is displayed, showing the following options:
  - a. Share with all CPCs
  - b. Share with selected CPCs: in that case, a list of all CPCs allows the IOTC user to select one or more CPCs.
  - c. SHARE and CANCEL buttons.
3. The IOTC user clicks on SHARE and the document is marked as shared with the selected recipients.
4. The users of the recipient CPCs defined in the report’s share list will receive a notification about the sharing, including a direct link to their Shared documents page. A similar notification will appear in IOTC users’ Shared documents page (with some variations, e.g. “A document has been shared with you” in the CPC’s shared documents list would read “A document has been shared” in an IOTC user’s shared documents list).
5. The relevant document appears in the recipient’s CPCs and IOTC users Shared document list.
6. The Share document dialog is dismissed and the IOTC user is returned to the document/report page, which now shows “This document is shared – [date of sharing]” instead of the “Share this document”.
7. Clicking on the new “share” link opens the “Share document” dialog showing a text indicating that this document was already shared on [date of sharing] and the following options:
  - a. Share with all CPCs (selected if the document was shared with all CPCs)
  - b. Share with selected CPCs (selected if the document was shared with selected CPCs): in that case, a list of all CPCs allows the IOTC user to select one or more CPCs (the previously selected CPCs are already pre-selected).
  - c. STOP SHARING, SHARE and CANCEL buttons.
    - i. SHARE updates the list of recipients and shares the document with the new list
    - ii. STOP SHARING removes the document from all users’ Shared document list. [should the un-sharing be notified to recipients?]

### 8.23.4 Results

The relevant document appears in the recipient’s CPCs and IOTC users Shared document list and can be consulted and commented on by CPCs and/or IOTC users.



## 8.24 Consult Shared documents

### 8.24.1 Scenario

The IOTC user consults a page which lists all documents that have been shared with CPC users.

This includes submission reports (e.g. Implementation Reports) and assessment reports (e.g. Compliance reports).

From there the IOTC user can view an individual document/report.

### 8.24.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) and be on the home page.

### 8.24.3 Workflow

1. Whenever a document or group of documents is shared by the system or an IOTC user, the IOTC users will receive a notification about the sharing, including a direct link to their Shared documents page.
2. The user clicks on the Shared documents button on the e-MARIS IOTC home page.
3. The Shared document page is displayed, showing:
  - a. a list of shared documents, sorted by most recent to oldest: each entry in the list shows the date of sharing and the title of the document and is a link to view the document itself.
  - b. each shared document that has never been viewed by the IOTC user [or by any of the IOTC users?] is visually marked as “new/unread” (preferably with the same visual clues as with the “unread” notifications).
  - c. the list is paginated and allows to go back through the whole history of shared documents.
  - d. a filter widget allows to user to search for shared documents based on:
    - i. date (from/to? year?)
    - ii. free text search on document title
4. Clicking on a shared document entry in the list:
  - a. marks the document as “read” instead of “unread”
  - b. displays the Shared document page.
5. The Shared document page shows:
  - a. Metadata about the shared document: date, title, source, type of document, status of document (draft vs final)
  - b. A link to download the document.
  - c. A link to the actual document/report in e-MARIS.
  - d. A feedback section allowing the IOTC user to send feedback on this document to the CPC or to all CPCs.

## 9 Administration tools for IOTC

### 9.1 Manage CPCs

#### 9.1.1 Scenario

The IOTC user wants to manage the list of CPCs registered in the system.

### 9.1.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administrative privileges.

### 9.1.3 Workflow

1. The IOTC user goes to the “e-MARIS administration” page and chooses the “Manage CPCs” action.
2. The “Manage CPCs” page is displayed, offering the following options:
  - a. A list of all existing CPCs, each one a link allowing to display/edit it
  - b. An “Add CPC” button
3. The user clicks on the “Add CPC” button:
  - a. The system displays a page allowing to add a new CPC, with the following fields: CPC name (country name), date of a accession, status (CP or CNCP), contact details, [any other CPC details as required by IOTC]
  - b. The user can click on the CANCEL or ADD CPC button:
    - i. CANCEL discards all the entered data and returns the user to the “Manage CPCs” screen
    - ii. ADD CPC saves the entered data and adds a new CPC to the list, then returns the user to the “Manage CPCs” screen, where the new CPC is listed.
4. The user clicks on a CPC name to edit it:
  - a. The system displays the “Edit CPC” page allowing to consult/edit the CPC details, with the following fields: CPC name (country name), date of a accession, status (CP or CNCP), contact details, [any other CPC details as required by IOTC, identical to “Add CPC” above], as well as a link to “Manage CPC user accounts” (see 9.2 Manage CPC user accounts).
  - b. The user can then modify CPC details as needed.
  - c. The user can click on the CANCEL or SAVE CHANGES button:
    - i. CANCEL discards all the changes and returns the user to the “Manage CPCs” screen
    - ii. SAVE CHANGES saves the entered data, then returns the user to the “Manage CPCs” screen, where the edited CPC is listed with its new information.
  - d. The “Edit CPC” page offers also an “Archive CPC” button, which can be used when a CPC leaves IOTC. This DOES NOT DELETE the CPC, but rather marks it as “archived/inactive” in the system. This CPC will not be considered as active anymore, so it will not be included in future implementation/compliance indicators, won’t be sent reminders and notifications etc. But it will still be part of past implementation/compliance indicators, its reports will still be accessible etc.
    - i. To archive an active CPC, the IOTC user clicks on the “Archive CPC” button.
    - ii. The system displays a confirmation dialog allowing to “CANCEL” or “ARCHIVE CPC”.
      1. CANCEL returns the user to the “Edit CPC” screen with no changes
      2. ARCHIVE CPC marks the CPC as “archived” and returns the user to the “Edit CPC” screen, where the archived CPC is shown in the list as ARCHIVED
  - e. When editing a CPC which has been ARCHIVED, the “Archive CPC” is replaced with a “Restore CPC” button. Restoring a CPC brings it back as active in the system, with its full history of implementation/compliance (note: years where a CPC has been ARCHIVED will be shown as “N/A” and won’t be counted as non compliant etc.)
    - i. To RESTORE an archived CPC, the IOTC user clicks on the “Restore CPC” button.

- ii. The system displays a confirmation dialog allowing to “CANCEL” or “RESTORE CPC”.
  1. CANCEL returns the user to the “Edit CPC” screen with no changes
- iii. RESTORE CPC marks the CPC as “active” and returns the user to the “Edit CPC” screen, where the archived CPC is shown in the list as ACTIVE.

[Note: it might be useful to allow the creation of custom groups of CPCs, for particular topics, programmes etc. e.g.: Costal Member States, DWFN...]

#### 9.1.4 Results

The CPC details changes are saved and the system is updated accordingly.

## 9.2 Manage CPC user accounts and access rights

### 9.2.1 Scenario

The IOTC user wants to add/edit/delete user accounts for a given CPC.

### 9.2.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administrative privileges.

### 9.2.3 Workflow

1. The IOTC user goes to the “e-MARIS administration” page, selects “Manage CPCs” then selects a CPC and clicks “Edit CPC”.
2. On the “Edit CPC” page, the user clicks the “Manage CPC user accounts”.
3. The system displays the “Manage CPC user accounts” page for the selected CPC. This page shows:
  - a. A list of all user accounts for that CPC, each one a link allowing to display/edit it.
  - b. A button to add a CPC user account.
4. The IOTC user clicks on the “Add account” button for a given CPC user account:
  - a. The system displays a page allowing to add a new user account to the selected CPC, with the following fields: login, password, user name, position, institution, address, email, [any other CPC user details as required by IOTC].
    - i. A widget allows to indicate whether this user has CPC administrator privileges, which would allow the CPC user to manage CPC user accounts.
    - ii. A widget allows the IOTC user to select one or more type(s) of information the user is allowed to consult[to be decided]/submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission/information categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
    - iii. For each category, a widget allows to define whether the user has the rights to validate information submission for that category.
  - b. The user can click on the CANCEL or ADD account button:
    - i. CANCEL discards all the entered data and returns the user to the “Manage CPC user accounts” screen
    - ii. ADD ACCOUNT saves the entered data and adds a new user account to the CPC, then returns the user to the “Manage CPC user accounts” screen, where the new CPC user account is listed. The new account is immediately activated.
5. The user clicks on the “Edit account” button for a given CPC user account to edit it:

- a. The system displays the “Edit CPC user account” page allowing to consult/edit the CPC user account details, with the following fields: CPC name (country name), date of a accession, status (CP or CNCP), contact details, login, password, user name, position, institution, address, email, [any other CPC details as required by IOTC].
  - i. A widget allows to indicate whether this user has CPC administrator privileges, which would allow the CPC user to manage CPC user accounts.
  - ii. A widget allows the IOTC user to select one or more type(s) of information the user is allowed to submit: this shows the list of all the current “report categories” created by IOTC (e.g.: IRs, NRs, Statistics...) or a list of “submission categories” (e.g.: compliance info, catch statistics, vessel statistics, trade statistics...).
  - iii. For each category, a widget allows to define whether the user has the rights to validate information submission for that category.
- b. The user can then modify the CPC user account details as needed.
- c. The user can click on the CANCEL or SAVE CHANGES button:
  - i. CANCEL discards all the changes and returns the user to the “Manage CPC user accounts” screen
  - ii. SAVE CHANGES saves the entered data, then and returns the user to the “Manage CPC user accounts” screen, where the edited CPC user account is listed with its new information.
- d. The “Edit CPC user account” page also offers a “Delete account” button. If the IOTC user clicks on the “Delete account” button:
  - i. the system displays a confirmation dialog asking to “CANCEL” or “DELETE USER ACCOUNT”
  - ii. CANCEL returns the user to the “Manage CPC user accounts” page for the selected CPC with no changes.
  - iii. DELETE USER ACCOUNT deletes the user account from the system, then returns the user to the “Manage CPC user accounts” page for the selected CPC where the deleted account is not listed anymore. [Note: this could be replaced with an “Archive” feature rather than “Delete”, which would make it easier to keep traceability of past user interventions etc.]

## 9.2.4 Results

The CPC user account details changes are saved and the system is updated accordingly.

## 9.3 Manage IOTC user accounts and access rights

### 9.3.1 Scenario

The IOTC user wants to add/edit/delete IOTC user accounts.

### 9.3.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administrative privileges.

### 9.3.3 Workflow

1. The IOTC user goes to the “e-MARIS administration” page, selects “Manage IOTC user accounts”.
2. The system displays the “Manage IOTC user accounts” page. This page shows:
  - a. A list of all IOTC user accounts, each one a link allowing to display/edit it.
  - b. A button to add an IOTC user account.
3. The IOTC user clicks on the “Add account” button:

- a. The system displays a page allowing to add a new user account, with the following fields: login, password, user name, position, email, [any other CPC details as required by IOTC].
    - i. A widget allows the IOTC user to select the roles that the new account will be attributed: these could be “compliance”, “data”, “administration”... [as required by IOTC]
  - b. The user can click on the CANCEL or ADD account button:
    - i. CANCEL discards all the entered data and returns the user to the “Manage IOTC user accounts” screen
    - ii. ADD ACCOUNT saves the entered data and adds a new user account, then returns the user to the “Manage IOTC user accounts” screen, where the new IOTC user account is listed. The new account is immediately activated.
4. The user clicks on the “Edit account” button for a given IOTC user account to edit it:
- a. The system displays the “Edit IOTC user account” page allowing to consult/edit the IOTC user account details, with the following fields: login, password, user name, position, email, [any other CPC details as required by IOTC].
    - i. A widget allows the IOTC user to select the roles that the new account will be attributed: these could be “compliance”, “data”, “administration”... [as required by IOTC]
  - b. The user can then modify the IOTC user account details as needed.
  - c. The user can click on the CANCEL or SAVE CHANGES button:
    - i. CANCEL discards all the changes and returns the user to the “Manage IOTC user accounts” screen
    - ii. SAVE CHANGES saves the entered data, then and returns the user to the “Manage IOTC user accounts” screen, where the edited IOTC user account is listed with its new information.
  - d. The “Edit IOTC user account” page also offers a “Delete account” button. If the IOTC user clicks on the “Delete account” button:
    - i. the system displays a confirmation dialog asking to “CANCEL” or “DELETE USER ACCOUNT”
    - ii. CANCEL returns the user to the “Manage IOTC user accounts” page for the selected CPC with no changes.
    - iii. DELETE USER ACCOUNT deletes the user account from the system, then returns the user to the “Manage IOTC user accounts” page where the deleted account is not listed anymore. [Note: this could be replaced with an “Archive” feature rather than “Delete”, which would make it easier to keep traceability of past user interventions etc.]

### 9.3.4 Results

The IOTC user account details changes are saved and the system is updated accordingly.

## 9.4 Backups - General considerations

A backup of the e-MARIS system can have three different scopes:

- database backup: this triggers a full dump of the database, which can be easily compressed and stored on server, uploaded to another server, sent by email to a predefined address...
- database and file backup: this triggers a database backup as well as a full copy of ALL the files uploaded by CPCs and generated by the system. Such a backup would allow to fully restore the system in case of an issue with data etc. This kind of backup can be extremely massive and cannot easily be emailed or saved on the same server on which the application is running. Maybe a LAN-based NAS-style storage system would be appropriate.

- full VM backup: this triggers a clone of the virtual machine in which e-MARIS is running, thus copying everything (operating system, software, application configuration, database, files...). This kind of backup is massive and has to be done outside of the e-MARIS application, and there probably would be only a limited number (one or two) of such backups stored at any time. This kind of backup can be extremely massive and cannot easily be emailed or saved on the same server on which the application is running. Maybe a LAN-based NAS-style storage system would be appropriate.

There are two types of backup triggers:

- automatic: this is a backup triggered by the system at regular intervals or after certain conditions are met (e.g.: one full VM backup every 24hrs, database+files backup after a the CRs have been generated...), using predefined parameters (scope, backup destination etc.)
- manual: backup triggered on-demand by an IOTC administrator, allowing the user to select the scope, destination etc.

As far as backup history is concerned, there would be a need to define a backup retention policy, which would have to take into account the scope of each backup (easy to keep all database dumps, hard to keep all VM snapshots).

This would depend on the tools selected to do those backups. For example, dedicated backup software/packages usually provide for full incremental backups allowing to keep a complete history of files while avoiding duplication (only new/changed files are backed-up).

The technical details of the backup strategy will have to be discussed with IOTC to take into account their needs as well as the available software/hardware resources available at the Secretariat.

Backup management would be accessed from the “e-MARIS administration” page.

## 9.5 Historical data import - General considerations

Once the system is in place, it would be interesting to be able to import historical information to allow users to get a picture of implementation/compliance since their monitoring began, and not just since e-MARIS entered in production.

This poses a number of questions/challenges:

1. What historical information would be imported?
  - a. only high level implementation/compliance status (e.g.: compliance score for a given CPC on a given year)?
  - b. implementation/compliance status details? (e.g.: which CPC fulfilled which requirement in a given year)
  - c. also actual information/data submission content/files (e.g.: catch data files for all years)?
2. Since requirements change over the years, to reflect new/amended CMMs, procedures etc., historical *requirements* would also need to be added to the system, if choosing 1.b or 1.c above.
3. Once a decision has been taken on this, then it would be a question of implementation, and finding out how to import the historical data:
  - a. fully manual: for each CPC and each year, basically do manually the whole process of submitting required information, just as with current submissions. This would pose an issue with dates of submissions etc. and also with preventing notifications/reminders to be sent etc.
  - b. automated: define a format for data and files to be imported in e-MARIS, then develop a software tool for importing historical information using this format, which would directly write the relevant information in the database and copy the files in the appropriate location on the server. This solution is probably preferable to the “fully manual” procedure, as, even if it would require some up-front development resources, it would

then be easier and less error-prone than manually entering information for 30+ CPCs over more than 10 years.

Historical data import would be accessed from the “e-MARIS administration” page.

## 9.6 The event log

### 9.6.1 Scenario

Every event within e-MARIS related to core features is logged in a journal that can be consulted by IOTC admin users.

Such events include the following types:

- On the CPC side:
  - CPC information/data submission
  - CPC user sign in/out
  - CPC user account editing
  - Feedback sent
  - Information/data submission
  - Annual Report generation
- On the IOTC side:
  - IOTC user sign in/out
  - IOTC user account/CPC/CPC user account creation/editing
  - Feedback sent
  - Annual Report generation
  - CPC submission validation
  - Requirement/Requirements set added/edited/deleted
  - Report templates added/edited/deleted
  - Manual backup
  - Historical data import
- On the system side:
  - Automatic Notifications sent (with trigger)
  - Automatic backup
  - Information/data sent to SWS
  - QA information received from SWS

The e-MARIS administration tools include a log viewer so that an IOTC admin user can browse the list of events.

### 9.6.2 Preconditions

The user must be signed-in with an IOTC account (see 8.2 Sign in to an IOTC account) with administrative privileges.

### 9.6.3 Workflow

1. The IOTC user goes to the “e-MARIS administration” page, selects “System log”.
2. The system displays the “System log” page. This page shows a list of system events (see above for a suggested list), with the following information:
  - a. date/time of the event
  - b. event type
  - c. event trigger: system or user name

- d. event description, including, if appropriate, a link to display the relevant event/result (e.g.: generation of an annual IR by a CPC would include a link to that CPC's Compliance Dashboard where the report can be consulted; generation of a backup would include a link to the list of backups...)
3. The list would be sorted by most recent to oldest event and paginated, with the following tools:
  - a. pagination navigation (previous/next [n] entries)
  - b. filtering by date/time, event type, event trigger
  - c. free text search on the event description
  - d. export log (selected/filtered entries, full log): exports the log in plain text format
  - e. rotate log: allows to archive the content of the active log as a zipped plain text file (then email/download the archive and delete the old log or simply list it in a list of rotated logs) then clear the active log.

## 10 Links to the IOTC Statistical Working System

Some of the information submission requirements cover statistical data that are currently handled by the IOTC Data section.

e-MARIS would provide a unified entry point for CPCs to submit all their data, thus also statistical data.

In a first phase, the process can be semi-manual: once statistical information/data is submitted by a CPC, then an IOTC user with Data privileges could retrieve the data and transfer it into SWS, just as is done today after receiving data submissions by email.

But a mostly automated communication process between the two systems would be preferable in the medium/long term.

### 10.1 Sending CPC data submissions from e-MARIS to SWS - General considerations

Requirements relevant to statistical data would be filled by CPCs like any other requirements in e-MARIS, but the information and data files submitted would be directly transmitted to the IOTC SWS for storage, processing, validation etc.

So, a system will have to be developed to transfer information and files from e-MARIS to SWS:

- how does SWS know that there is new information in e-MARIS?
  - Regular, automatic background polling of e-MARIS by SWS
  - notification to SWS by e-MARIS
- how does SWS retrieve the new information in e-MARIS?
  - SWS requesting/pulling the relevant data/files from e-MARIS
  - e-MARIS pushing the relevant data/files to SWS
- both systems should have a mechanism in place for acknowledging that the exchange of information has been successfully completed.

Once information/data has been transferred from e-MARIS to SWS, a notification must be sent:

- by e-MARIS to the IOTC Secretariat/Compliance users to inform them
- by SWS to the IOTC Secretariat/Data users to inform them



## **10.2 Sending validation and QA information from SWS to e-MARIS - General considerations**

Once information/data relevant to a particular requirement have been processed in SWS, this generates a number of quality indicators and other QA information, that can then be sent back to e-MARIS, thus participating to the compliance evaluation of the relevant CPC (see 8.17 Validate CPC submissions and perform quality assessment).

The QA indicators generated by SWS would thus have to be compatible with those used by e-MARIS (and vice versa), or at least correspondences should be established.

For traceability purposes, it should be possible to trace a QA indicator value in e-MARIS back to the processing in SWS.