

REQUIREMENTS SPECIFICATION OF THE REPORT SUBMISSION MODULE FOR THE MEDPOL IS – Draft 0.1

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1. Scope of the Document

This document defines the requirements specification for the Report Submission module of MED POL Info System [1]. The Report Submission module is the software component of the MED POL Info System that allows authorized users to submit the Report files, formatted as per Annex 1 of ref. [2], containing the data acquired in the framework of the MED POL Phase III Monitoring Activities. The module, which is integrated into the MED POL Info System Intranet [3], offers a Web interface for the Report file transfer, checks conformance and consistency of submitted file to the corresponding reporting format, produces a submission log and notifies interested parties of the activity performed. Upon successful submission the data are injected into the MED POL Phase III Database for review [2] [4].

2. References

- [1] 'MEDPOL Info System Draft Concept Paper', UNEP, Athens 2005.
- [2] 'Conceptual Design of the MED POL Phase III Database', UNEP, 2002 .
- [3] 'MED POL Info System - Intranet. System Design Document, v. 0.1', INFO/RAC, Rome 2006.
- [4] 'MED POL Info System - Intranet. User Manual, v0.1', INFO/RAC, Rome 2006.

3. Introduction

Within the context of the MED POL Phase III Monitoring Activities, the National Focal Points (NFP) submit periodical reports with copious amount of a wide range of environmental data using Report files formatted according to 11 Reporting Formats specified in Annex 1 of ref. [2].

Background

At present the NFPs transmit the Report files via email to the central MED POL Unit and MED POL officers need to load them into the current MS Access implementation of the MED POL Phase III Database. The load module of the MS Access application checks the

conformance of each Report file and the consistency of the data, before injecting the data into the database.

In the event of errors the Report file is rejected, MED POL officers try to correct the Report file and send it back to the submitter who needs to review and re-submit it. This process is cumbersome and error prone, moreover it is not unusual that a few iterations are needed before the Report file loads into the database.

Objectives

The Report Submission module is intended to streamline the submission of the Reporting files in the context of the 'MED POL Phase III Monitoring Activities' and reduce the associated workload on NFPs and MED POL officers. The module provides on-the-fly conformance and consistency checks able to produce explanatory error messages directly to the NFPs during the data submission procedures. The system should be user-friendly in order to minimize training sessions for national users.

Stakeholders

Users and entities that have an interest in the Report Submission module:

- the National Focal Points for the submission of report files
- MED POL officers for the monitoring and validation of the report files submitted by the National Focal Points and submission of report files

4. Requirements specification

Definitions

In the following we have used the following definitions:

- **reporting formats** are the formal specification for the report files, they are defined in the Annex 1 of ref. [2]
- a **reporting template file** is file formatted according to one of the reporting formats with no data inside, i.e. these reporting template files are distributed by the MED POL unit to the partners,
- a **report file** is a reporting template file filled with data,
- a report file contains an arbitrary number of **records**, each record corresponds to an analysis performed on a sample,
- each record is composed of **identity fields** and **data values fields**.

Requirements

1. Report file transfer	
1.1	Users authorized with write access to the database shall be able to start the submission process of a Report file prepared in conformance to one of the Reporting formats.

2. Conformance and consistency checks	
2.1	The system shall check the conformance of the submitted Report file to the corresponding Reporting format specification,
2.1.a)	accepted file formats are Microsoft Excel (xls) and Comma-Separated Values (csv),
2.1.b)	if the uploaded file is a Microsoft Excel (xls) file, only the data of one sheet shall be processed. In the event that a Microsoft Excel (xls) file with more than one sheet is uploaded, the system shall query the user for the name of the sheet containing the data to process,
2.1.c)	the header record shall contain all the required header fields for the corresponding Reporting format and no unknown field,
2.1.d)	the content of all fields shall have the defined data type, <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Examples:</i></p> <ul style="list-style-type: none"> • <i>numeric fields cannot contain alphabetic characters,</i> • <i>date fields shall contain a properly formatted date,</i> • <i>string fields with length 3 cannot contain more than 3 characters.</i> </div>
2.2	The system shall check the consistency of the records with the data already present in the Monitoring database,
2.2.a)	all reference fields must refer to existing object in the database, <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Example:</i></p> <ul style="list-style-type: none"> • <i>fields referring to countries, regions, institutes, stations, etc. must refer to existing entities in the database using the correct code,</i> </div>
2.2.b)	fields in the same record must be consistent, <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Example:</i></p> <ul style="list-style-type: none"> • <i>a record belonging to a country cannot refer to a station of a different country</i> </div>
2.2.c)	each record must contain data for a new analysis, updating analysis data already present into the database shall raise an error.
2.3	Upon detection of non-conformance (2.1) or inconsistency (2.2) conditions the submission shall fail and the system shall notify the user with an explicative error message about the error conditions encountered,
2.3.a)	whenever applicable the error message shall contain: the error description, the line number in the Report file where the error condition has be triggered, the offending value, a hint on what the system expected instead.

2.4	<p>The system shall check the submitted data values against a set of acceptable data ranges defined into the Monitoring database.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><i>Examples: Data values out of the acceptable range may come from a number of easily correctable data entry errors as:</i></p> <ul style="list-style-type: none"> • <i>typos, especially when involving the decimal sign (the point or the comma depending on the country preferences),</i> • <i>the use of an incorrect unit of measure for the value,</i> • <i>correct values placed in the wrong cell.</i> </div>
2.5	<p>Upon detection of out-of-range data values the system shall notify the user with an explicative warning message about apparent anomalies of the data values being submitted.</p>
2.6	<p>The system shall present to the user relevant statistics about the data being submitted and the warning messages possibly produced as per the requirement 2.5,</p>
2.6.a)	<p>relevant statistics shall contain information about the submission: submitter user name, date, Reporting format, number of records processed,</p>
2.6.b)	<p>whenever applicable the warning message shall contain: the warning description, the line number in the Report file where the warning condition has be triggered, the offending value, a hint on what the system expected instead.</p>
2.7	<p>The user shall be given the choice to proceed with the submission (possibly ignoring the warnings) or cancel the submission altogether.</p>
<p>3. Data injection into the database</p>	
3.1	<p>The system shall inject the data into the main Monitoring database in the state 'pending review'.</p>
<p>4. Submission log</p>	
4.1	<p>At the end of the processing the system will notify the user about the activity performed and the activity results,</p>
4.1.a)	<p>the submission log shall contain at least all information presented to the user as per requirement 2.6.</p>
<p>5. Report file storage</p>	
5.1	<p>The system shall save to permanent storage the Report files and associated user inputs that resulted in a successful submission for future reference.</p>

5. Process flowchart

The following figure illustrate an overview of process flow (solid lines) and data IO (dashed lines) of the Report Submission module.

